Volume 4, Issue 12. March 2017 ISSN 2320-7973

IJFAR

International Journal Of Fundamental & Applied Research

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International Journal of Fundamental & Applied Research
Website : www.ijfar.org ,(ISSN- 2320-7973 Volume-4 Issue -12 Month – March 2017 pp. (01 – 07)

Religious Elements with Humanism in the Works of Tagore

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ABSTRACT
The present paper focuses on the religious element with humanism in the works of Tagore. Rabindranath's birth coincided with the dawn of Indian Renaissance which found expression in three different movements – religious, literary and national. He was deeply influenced by these movements. The religious movement was introduced by Raja Ram Mohan Roy who did his best to establish spiritual values which has been lost in the mire of old tradition.

INTRODUCTION

It is believed that man is an evolutionary product of Nature and a part of it; but his spirit is free. That spirit believes in freedom of man and rejects all kinds of determinism and fatalism. Humanism entails a commitment to the search for truth and morality through human means in support of human interest. It endorses recognition of a universal morality based on the commonality of human nature. By this emphasis on the cultural unity of India transcending caste, creed and religion, Tagore not only asserts the value of humanism in life but also paints the dangers faced by the national awakening in the country at the beginning of the twentieth century.

Tagore was impressed by the idea of synthesis of all religions of Brahmo Samaj. Brahmo Dharma is a synthesis of all living religions of the world like Hinduism, Islam and Christianity etc. To him Brahmanism seems to be the religion of the entire world which has rejected all idol forms of worship and religious superstitions. Tagore was against untouchability and all prejudices regarding caste and race and he worshipped the divine in man. Tagore calls the ideal of project man in man's mind as God. He also addresses his God as lord, friend, beloved and sometimes only as 'you'. His God is the idea of complete development of humanity.

Blend of religiousness with humanism is evident in the works of Tagore. Tagore is a spiritual humanist who finds out spiritual significant in the common place activities of life and finds God in humble cattles and not in temples. He condemns castes and creeds which divide mankind and point out that narrow religious outlook militates against the oneness of mankind. In the *Fugitive and Other Poems*, the Rani Jhali of Chittore follows Raidas, the sweeper, who enjoys mystic visions. The old Brahmin priest rebukes her for her desecration of sacred law by affecting homage as a disciple to an outcaste. The Rani's answer reveals Tagore's innate love for the poor and the outcaste:

Brahmin, while you were busy tying your purse –
strings of custom ever tighter, love's gold slipped

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immotile to the earth, and my master in his divine humility has picked it up from the dust. Revel in your pride of unmeaning khats without number, harden your miserly heart but I, a beggar woman, am glad to receive love's wealth, the gift of the lovely dust, from my master the sweeper. (The Fugitive 402)

In *Gitanjali* he reveals his firm conviction that God cannot be found in chanting hymns in the lonely dark corner of a temple or in the feeling of beads. He says:

Deliverance? where is the deliverance to be found?' Our master himself has joyfully taken upon him the bound of creation; he is found with us all forever. Come out of the meditations and leave aside thy flowers and incense! what harm is there if thy clothes become tattered and stained? Meet him and stand by him and in seat of the brow. (Selected Poem 08)

If we talk about the plays of Tagore which have religiousness with humanism, they are *The King of the Dark Chamber, Sacrifice, Malini, Sanyasi.* As his *Sanyasi* is the well known play among the earliest plays written by Tagore, its importance lies in the fact that it illustrates the basic idea of the entire literary output of Tagore – the realization of the divinity in the world of humanity. The Sanyasi failed to realize the truth that God's presence pervades everywhere at last he realizes his fault with the touching conversation of a little girl. Tagore's concept of religiousness is different in the sense that he believes religiousness with the blend of humanity. He believes that humanity is the real religion.

Sacrifice and *Malini* are among the most well known non-symbolic plays of Tagore. In these plays there is a conflict between orthodox religion and conventions, which can be easily noticed. There is a close similarity between the main characters in the two plays. Raghupati and Khemankar Jai Singh and Supriya closely resemble each other. It is significant that the poet dedicated sacrifice to those who bravely stood for peace when human sacrifice was claimed for the Goddess of war. It is clear, therefore, that although the theme of the play is the time-worn convention of sacrificing animals before the image of Kali; it has a wider application in the outside world. In *Sacrifice* Raghupati and Jai Singh are two outstanding characters, Raghupati is a priest in the temple of Goddess Kali; the daily sacrifice of animals in the temple is an age-old convention prescribed by the scriptures and sanctified by tradition. He was against the cruel stupidity behind this age-old convention and forbids animal sacrifice in the temple. There is a deeper conflict, however in the mind of Jai Singh, the servant of the temple, between blind obedience, on the one hand and dictates of reason on the other. The conflict deepens till at last Jai Singh kills himself to seek relief from his mental agony and torture.

The theme of *The King of the Dark Chamber* is a remarkable achievement of Tagore in the domain of symbolic art. In this play the king stands for God or the universal soul and Dark chamber represent the inner consciousness of man. The King is dark and unseen because God is formless and cannot be seen with the physical eye. The human soul is captivated by the various forms of sensuous because it is doomed to destruction.

In Tagore's *Muktdhara*, the people of a village Shivtarai offer their worship to the *Bairav* temple to break the wall of a dam and liberate the water thus resulting prosperity in Shivtarai. Abhijit, the hero of their play sacrifices his own life for the welfare of the villagers. We can also see his religious treatment with the humanism in his *Natir Puja* (*The Dancing Girl's Worship)* set against the background of conflict between Hindu orthodoxy and Buddhist enlighten. The play is based on the historical legend of *Bimbisara* renouncing throne

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for embracing Buddhism and his son Ajatsatru becoming the new King. The royal wrath gets more revengeful when a low cast girl Srimati, The Nati (place Dancer) is chosen to offer worship at the Shrine on the birthday of Lord Buddha. Srimati is condemned by the people for sin of dancing at the place of worship. Srimati's accepting the situation is a detached dedication of her role as a dancer to the love and worship of the lord.

Tagore's religious outlook is not narrow, but broad in every sense of the term. He is a spiritual human who finds out spiritual significance in the commonplace activities of life and finds God in humble colleges and not in temple. He was always opposed to caste and creed that divide mankind and points out that narrow religious outlook as against the oneness of mankind.

If we talk about the religious elements and humanism in the novel of Tagore we find *Gora* in its best ways. In *Gora* Tagore has directed his fight of humanism against fanatic religion as well as narrow minded patriotism simultaneously. Throughout the novel there is a lot of debate and argument about God and Hinduism. In the end of this novel, the hero Gora realized that India is a country not just about Hinduism but is a country with many religious and many ideas. Gora realized that a real God was not just the Hindu God but the real God was someone who could be worshipped by people of all the religions

Even before Tagore wrote *Gora* he exhibited in his earlier novel *Rajrishi* (The Saint King) a great impatience with all those evil practices of religion which vitiate the vision of man. In this novel which came out in 1887 and was later dramatized as the play *Sacrifice*.

The Novelist shows a conflict between the orthodoxy who favour bloody sacrifices at the altar of the Goddess Kali and those who reject this inhuman custom about religion and humanism, we can see Tagore's view in his Gora;

Today give me the mantra of that Diety who belongs to all, Hindu, Musalman, Christian and Brahmo alike – The doors to whose temple are never closed to any person of any caste whatever. He who is no merely the God of the Hindus, but who is the God of India herself. (Gora 407)

Tagore was perhaps influenced by Buddha, the feeling of love for all beings. Buddha accepted values and Buddhism aimed at perfect and complete development of human personality. Like, Buddha Tagore has placed religion of heart at the higher pedestal than religion of sects.

Like Kabir, Tagore also believes that love is another name of the joy from which all creature are born and by which they are sustained. Tagore felt that the temple and mosque are dead things intervening between the soul and its love. He links religiousness with the humanity and that is his divine treatment.

In *Chaturanga* (Broken Ties) and *Ghare Baire* (The Home and the world) which was published in 1916 i.e. six years after the completion of Gora, he looks at the problem of humanism in two different backgrounds of religion and politics separately.

It is believed that Tagore was greatly influenced by the spirit of Bauls, the wondering saints who sang in the praise of the eternal one. These Bauls have no temple, and they don't believe in any image of worship. Tagore interprets their philosophy in his article, "An Indian Folk Religion" in his book *Creative Unity*. He says that the man of my heart to the Baul, is like a divine instrument perfectly turned.

If we talk about Tagore's master piece *Gitanjali*, the main theme of *Gitanjali* is devotional and mystical. In this respect it reveals the influence of

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Vaishanava and Shiva poets who love God as a child loves it mother, or as a lover loves his or her beloved. It also shows the great influence of the *Upanishads* and the *Geeta* on Tagore, and in this respect *Gitanjali* is imbued with the mysticism and spirituality that characterize the thought and philosophy of ancient India.

In *Gora*, Tagore has directed his fight of humanism against fanatic religion as well as narrow minded patriotism simultaneously. In *Gora*, he has profounded his faith in humanism by defining his motherland as cultural unity rising above the narrow limit of caste, sects and religion.

Gora is undoubtedly the gemstone of Tagore and one of the greatest novels written by him. In this novel the author assets without any reserve the importance of man above society and narrow minded sects. Binoy, a member of an Orthodox family and Lalita, a member of Brahmo Samaj, decide to marry each other in spite of tremendous opposition from both sects, because they feel;

Of love is unable to acknowledge differences then why are there differences anywhere in this world. (306)

Condemning the tyranny of society, Binoy revolts against the die-hard Hinduism of his friend Gora and tells him emphatically.

Today I stand or my feel; I can no longer admit the right of society to be farcifies. And whether I have to live or die, I am not goiry to wonder about with the noose of its injections fastened round my neck. (Gora 320)

Again Binoy says:

Let me tell you that in this matter I will not submit to any one's tyranny, I will admit the claims upon it. if it refuses to regard me as a man and wants to fashion me into a puppet or machine, I too will not worship it with my flowers and Sandal paste – I will regard it as a machine of iron! (321)

To Gora therefore, everything that is Indian is sacred and everything that is Indian is to be interpreted in terms of undiluted Hinduism. In one of his discussion with Sychorita, he remarks;

I am a Hindu A Hindu belongs to no party. The Hindus are a nation, and such a vast nation that their nationality cannot be limited within the scope of any single definition. Just as the ocean is not the same as its waves, so Hindus are not the same as sects. (294)

At another place he says:

For you I make only this request; come inside India, accept all her good and her evil; if there be deformity then try and cure it from within, but sees it with your own eyes, understand it, think over it, turn your face towards it, become one with it. You will never understand if you stand opposed and, imbued to the bone with Christian ideas, views it from outside. Then you will only try to wound and never be of any source.

(Gora 102-103)

He further says:

That which transcends country, which is greater than country, can only reveal itself through one's country – I can assure you that through the open sky of India you will be able to see the Sun therefore there is no need to cross the ocean and sits at the window of a Christian Church. (Gora 103)

Tagore believes that Hinduism is a very liberal religion; it welcomes everyone with open heart;

You must understand that the Hindu religion taken in its lap, like a mother, people of different ideas and opinions, in other words the Hindu religion looks upon man only as man and does not count him as belonging to a particular party. It honours not only the wise but the foolish also, and it shows respect not merely to one form of wisdom but to wisdom in all its aspects. (Gora 296)

We may call Tagore a good humanist due to three reasons, first, he attributes humanness to God; secondly, he attributes divinity to human beings and thirdly; man as finite; wordly being is given importance in his philosophy. This greatest figure of humistic idea found in the Vaishava, philosophy

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of the Baul sects and medieval Indian mystics, Buddhism and above all by the Upnishads. Again Tagore is impressed by the idea of synthesis and all religions of Brahmo Samaj. Though his conception of man is influenced by various opinions, he has always felts in his heart the greatness of man, the immortality of his beings and therefore, we may say, his idea of man is his and spiritual aspects of man's nature.

Tagore's philosophical discourses in 'Santiniketan', 'Sadhna' and 'The Religion of Man' are deeply influenced by the Upnishadic teachings. He has maintained that the ultimate reality in Brahman and that the absolute has no meaning at all, the finite gives it meaning. In other words, the infinite expresses himself through the finite. He was fascinated by the teaching of Mundaka Upnishad where it is that; one who sees all things in atma, sees atma in everywhere; he does not hate anyone.

Tagore was impressed by the idea of all religions of Brahmo Samaj. Brahmo dharma is a synthesis of all living religion of the world like Hinduism, Islam and Christianity etc. To him Brahmanism seems to be the religion of the entire world which has rejected all ideal forms of worship and religious superstitions Tagore was against untouchability and all prejudice regarding caste and race and he worshipped the divine in man.

Indian humanist gives importance to spiritual and ethical nature of man and Tagore's belief in spirituality is translated into love for humanity. He is a rational humanist, and he preaches universal religion of man. According to him the essence of religion consists in the developments of spiritual qualities which give us a will to unite with all people of the world. His religion leads him to internationalism and his deep and continuous attempt to reconcile the East and West. Keeping before him an ideal of complete development of man, he has founded Visva Bharti, an international univeristy where the whole world has become a single nest; *Yatra visvanm bhavati eka nidam*. He can be most aptly described with the old Vedic expression – Visva-naman, one who has a mind for all one with universal perception. He has visited countries like England, France, America, Germany, China, Japan, Russia and everywhere has proclaimed his faith that ideals of humanity are superior to love for nation. To him a man is first of all a man, whose religion is to become a lover of the whole humanity, not be a patriot only.

Though the *Vaishnavas* have given the humanistic conception of the Divine, they have not made him finite. Tagore says that the devotee realized the infinite by bringing him within the limit. As the eternal sky when it is found by room, in that way the limited Brahman remains the same and again when Brahman is made limited in the personalities of Radha and Krishna. The success of the infinite lies in the bondage with the finite. The infinite becomes the objects of love when it comes within the limit, otherwise love is not possible; in the infinite there is no love, no limitation. But this infinite wants to be closely associated. According to Tagore where there is love there is humanity, we can see his religiousness with humanism in his master piece *Gitanjali*, when he says;

heave this chanting, and singing and telling of beads, when dost thou worship in this lonely dark chamber of a temple, with doors all shut Open thin eyes and see thy God is not before thee. (Gitanjali song 11, 113)

His religious verses which are given in his Gitanjali makes us feel that he is essentially a writer of spirituality and mysticism and not of man of the earth. Here is another example from his *Gitanjali* about the questioning where is God:

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Is there where the tiller is tilling the hard ground and where the path maker is breaking stones. He is with them in sun and shower, and his garment is covered with dust. (Gitanjali song 11, 116)

With the finite; this is the truth which lies, behind the form of Radha and the form of Krishna. Tagore in his Sadhna has described God as the Supreme love and the union between human soul and Divine can be possible by love according to him.

Generally, humanities thought of religion as intelligent participation in the human quest for the good life in a shared world. Humanism serves, for many humanists, some of the psychological and social functions of a religion, but without belief in duties, miracles and supernatural. It believes in an ethics and morality that grounds all human values in earthly experience and relationship.

Humanists affirms that humans have the freedom and obligation to give meaning, value and purpose to their lives by their own independent thought, free inquiry and responsible creative activity. They stand for the building of a more human reason, experience and reliable knowledge, an ethics that judges the consequences of human actions by the well-being of all life on earth. Humanists are realistic in outlook, and are concerned with the advancement of humanity, by using the methods of national thinking and analysis. It differs from science only to the extent that it tries to construct an ethical code that is conductive to human welfare.

His religiousness is linked with the humanity. He was a great lover and believer in humanity. Along with the relationship of the individual soul with other men, is also explored. God is with 'the poor and the lowly and lost'. S.B. Mukherji Writes : "The Vision Spews down upon the sordid present and dwells upon the insults to humanity in the name of cast and creed to the humble and the loudly who are achieved the sacred rights of men. Tagore castigates all religions orthodoxy:

Leave this chanting and singing and telling of beads! Whom dost thou worship in this only dark corner of a temple with doors all shut? Open thine eyes and see, thy God is not before thee! He is there where the tiller is lilling the hard ground and where the path maker is breaking stones. He is with them in sum and in shower, and his garment is covered with dust. (Gitanjali song 11, 113)**)**

In *Gitanjali*, Tagore prays to God for the redemption of man from waywardness, slavery and misery which make life miserable. Here we can see his religiousness, touch with humanity, as he was a great worshiper of humanity.

Where the mind is without fear and the head is held high;
Where knowledge is free,
where the word has not been
broken up into fragments by narrow
domestic walls;
Where the words come out from the
depth of truth;
Where tireless striving stretches' its arms towards perfection;
Where the clear streams of reason has not
lost its way into the dreamy desert sand of dead habit
Where the mind is led forward by thee into ever widening thought and action
Into the heaven of freedom, my father,
Let my country awake! (Gitanjali Song 35)

Conclusion:

Tagore's belief in spirituality is translated into love for humanity. He is a rational humanist, and he preaches universal religion of man. According to him the essence of Religion consists in the development of spiritual qualities which give us a will to unite with all people of the world. His religion leads him to internationalism and his deep

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and continuous attempt to reconcile the East and the West. Tagore was perhaps influenced by Buddha, who taught us maitri that is, the feeling of love for all beings. Buddha accepted valued and Buddhism aimed at perfect and complete development of human personality. Like Buddha, Tagore has placed religion of heart at the higher pedestal than religion of sects. The aim of finite man is not to become God, but to develop in himself high faculties of the mind and realize perfect ideal for humanity.

At last we can say that Tagore has successfully blended religiousness with humanism. Though humanism rejects authority, sacrificial cult of ritualism and theology, it is not anti religion in character. It is religious because it does not reject values and morality in man's life. In brief, religion is a creation of human living, not a revelation from Gods on high.

References:

Tagore R .(1912) *Gitanjali* London: McMillan and Company, . Print.

Tagore R .(1912) *The Fugitive*. London: McMillan and Company, . Print.

T Tagore R (1999.) The Home & World, London: McMillan & Co. 1999. Print

Poems from Tagore. Calcutta: McMillan & Company, 1922, Print.

Collected Poems and Plays and Rabindranath Tagore. London: McMillan & Co., 1936. Print.

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STUDIES ON THE PROXIMATE AND MINERAL COMPOSITION IN THE WALKING LEGS OF A FRESHWATER CRAB, PARATELPHUSA SPINIGERA

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ABSTRACT
The tissues of walking legs in Paratelphusa spinigera were studied for their proximate (protein, fat, moisture, ash and carbohydrate content) and mineral (calcium, magnesium, potassium, sodium, iron, copper and zinc) composition. The protein determined by Microkjeldahl method ranged between 15.9-18.4 % and the study showed that the samples are rich in protein in leg tissues. Fat were determined gravimetrically and extraction method using soxhlet extractor were found to ranged between 0.71-1.12 %. The carbohydrate is higher in the walking legs with a value of 1.156 ± 0.854 %. The moisture content ranged from 76.9-79.2 % with 78.48±0.967%. Ash content recorded with an average value of 2.098±0.189%. The concentration of sodium was highest (210.86±6.47 mg/100g) followed by potassium (159.1±6.20 mg/100g), calcium (139.64±6.652 mg/100g), magnesium (55.28±5.201 mg/100g), zinc (3.93±0.113 mg/100g), copper (0.824±0.063 mg/100g) and iron (0.58±0.152 mg/100g) in the leg tissues of the crab. On the other hand iron showed the lowest concentration which ranged between 0.48-0.66 mg and 100 g in the tissues of the walking legs. Therefore, the freshwater crab, Paratelphusa spinigera could be a balanced diet in human. The recorded values of proximate and mineral composition could be employed as an alternative dietary supplement of protein, carbohydrate, fat and minerals in the body can be used to prevent nutritional deficiencies.

INTRODUCTION

The fresh water crabs have significant role in the food chain of aquatic ecosystem. More than 1300 freshwater crabs were identified in the world (Varadharajan and Soundarapandian, 2014).The freshwater crabs are good source of food and have immense medicinal values (Cobb *et al.,* 1975; Fang *et al.,* 1992). Crabs play a significant role in the fishery wealth of many nations (Chhapgar, 1991). In Southern India, large Potamids and Parathelphusids are eaten by local peoples (Ng PKL, 1988). *Paratelphusa spinigera* is an important source in the diet of rural, urban and hilly areas of Assam (Kalita, 2002). The crabs or shellfish are nutritionally very precious for minerals and high quality proteins (Skonberg and Perkin, 2002; USDA, 2003). Freshwater crabs are also consumed for their medicinal values and used as tonic for their healing properties, including treatment of stomach ailments and physical injuries (Dai, 1999) and as food (Finker, 1986). To know the nutritional value of crabs, biochemical studies are very important (Soundarapandian *et al.,* 2010). Adequate amount of dietary protein is required for the growth, development, reproduction, maintaining a good health and survival. Protein is the most important constituent in crabs for their normal functions of body tissues. The ideal protein requirement for infants is 39%, 26% for children and 11% for adults (FAO/WHO/UNU, 1985). Amino acids are the building blocks of proteins and serve as body builders. They are utilized to form various cell structures, of which they are key components and serve as source of energy (Kalita *et*

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al., 2016). Crabs are one of the cheapest resources that can serve as an alternative source of proteins and minerals for man. Crab constitutes one of the main sources of animal protein most especially among the poor peoples in Assam. Crabs have a high ash, mineral and crude fibre content (Oduro *et al.,* 2001), serves as a source of minerals consumed either wholly and partially by sick folks (Akin-Oriola *et al.,* 2005) and is often recommended for pregnant or lactating women (Adeyeye and Kenni, 2008). It is well-known that calcium and iron are the basic components to maintain the development of bones. Calcium and iron are also required for childhood and growing stages to prevent from diseases like rickets and osteomalacia (Valverde *et al.,* 2000). Crabs have been praised for their life supporting properties. The chemical composition and nutritive values of crab's meat have been extensively studied in various parts of the world (Adeyeye, 2002; Nalan and Yerlinkayaa, 2003). But little work has been done on the biochemical composition in the walking legs of the freshwater crab, *Paratelphusa spinigera*. Therefore, the present study was undertaken to estimate the protein, carbohydrate, fat, moisture, ash and mineral contents in the walking legs of a freshwater edible crab, *Paratelphusa spinigera.*

MATERIALS AND METHODS:

The adult crabs, *Paratelphusa spinigera* were collected from the local markets of Morigaon District, Assam. After reaching the laboratory they were washed carefully with distilled water to remove the dust and algal particles and later ice killed. The edible parts, the walking legs of the crab were removed with sharp forceps. The removed edible parts were homogenized with pestle and mortar separately. The grounded edible parts were then freeze dried and powdered and eventually stored in refrigerator for further analysis. Then the powdered samples were dried at 60°C in an oven and used for biochemical analysis. A portion of the well minced sample is taken up for finding out protein, carbohydrate, fat, moisture, ash, sodium, potassium, calcium, magnesium, iron, copper and zinc content. Carbohydrate was calculated using the standard equation 100% - (% protein + % fat + % ash + % moisture). The moisture is determined by drying the flesh at 105^{o}C for 5-6 hours to constant weight. The fat is estimated by extracting the same with ether in a Soxhlet Extractor for a period of 10-12 hours. Nitrogen in the flesh is estimated by Kjeldhal nitrogen estimation method and the nitrogen value is multiplied by the factor 6.25 for protein value. The ash content is estimated by igniting a known weight of the dried substance. The proximate composition was analyzed according to the method AOAC (2000) while the mineral concentrations were determined by using AAS.

RESULTS AND DISCUSSIONS:

In the present study, we investigated the proximate and mineral composition from the edible tissues of ten freshwater edible *Paratelphusa spinigera*. The results are tabulated in the table (1 and 2). Among the proximate composition investigated, the most abundant was moisture followed by protein, ash, carbohydrate and fat; among the minerals sodium was highest followed by potassium, calcium, magnesium, zinc, copper and iron. Maximum protein was recorded in walking legs (17.34 ± 0.934 %). This is in conformity with the previous works of Radhakrishnan and Natarajan (1979) and Khan (1992). They recorded the protein value 15.75 to 20.16% in *P.vigil* and 11.60 to 19.92% values in *S. serrata.* Vasconcelos and Braz (2001) have recorded the protein content 17.8% in *C. affinins*. Zafar *et al.* (2004) reported 17.69 to 19.39% protein in *S. serrata*. Thirunavukkaras (2005) recorded the protein 65.48 to 72.24% in body meat of *S. tranquebarica* and Aygul Kucukgulmez *et al.* (2006) reported 69.5 to 80.29% in leg meat of *C.sapidus*.

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No. of experiment	Walking Legs of *Paratelphusa spinigera*				
	Protein (%)	Fat (%)	Moisture (%)	Ash (%)	Carbohydrate (%)
1.	18.4	1.12	78.2	2.07	0.21
2.	17.1	0.71	79.1	2.10	0.99
3.	17.5	0.82	79.0	2.05	0.63
4.	15.9	0.93	79.2	2.43	1.54
5.	17.8	1.05	76.9	1.84	2.41
Range	15.9-18.4	0.71-1.12	76.9-79.2	1.84-2.43	0.21-2.41
Average±SD	17.34±0.934	0.93±0.166	78.48±0.967	2.098±0.18	1.156±0.854

Table-1: Proximate composition of walking legs in *Paratelphusa spinigera* (Range, Average and Standard Deviation)

The carbohydrate content was significantly lower in walking legs (1.156 ± 0.854%). Similar result was also reported in different crabs viz., the range of carbohydrate was 0.3 to 0.63% in *P. vigil* (Radhakrishnan and Natarajan,1979); 2.4 to 3.4% in *C. smithii* (Balasubramanian and Suseelan (2001); 0.17% in body meat and 0.24% in claw meat of *S. serrata* (Prasad and Neelakantan (1989); 0.16 to 0.55% in *P. pelagicus*, 0.44 to 0.73% in *P. sanguinolentus* (Radhakrishnan,2000); 0.59 to 2.23% in body meat, 0.68 to 2.87% in claw meat and 0.76 to 2.76% in leg meat (Thirunavukkaras, 2005). The lipid contents were higher in walking legs (0.93 ± 0.166%). Similar trend was also reported in different crabs, Celik *et al.* (2004), Musaiger and Al-Rumaidh (2005) and Kuley *et al.* (2007).

The moisture content in walking legs was maximum (78.48±0.967%). Similar observations were also made by Akbar *et al.* (1988) and Soundarapandian and Singh (2008) in *P. pelagicus.* They reported 78.15% in body meats and 79.05% in claw meats. Skonberg and Perkins (2002) and Kucukgulmez (2006) also reported similar results in green crab *C. maenus* and in blue crab *C. sapidus*. The ash content of the present study was found to be ranged between 1.84-2.43% with an average of 2.098±0.189% which was somewhat higher than the previous report of Kuley *et al.* (2007) in *C. sapidus.*

No. of of experiment	Walking Legs of *Paratelphusa spinigera*						
	Ca (mg/100g	Mg(mg/100	K(mg/100g)	Na(mg/100g	Fe(mg/100g	Cu(mg/100g)	Zn(mg/100g
1.	137.9	55.7	155.4	211.5	0.48	0.90	3.76
2.	132.5	62.5	167.5	219.0	0.61	0.79	3.87
3.	149.0	57.2	152.3	208.6	0.52	0.88	4.04
4.	143.6	48.7	163.4	201.5	0.63	0.75	3.95
5.	135.2	52.3	156.9	213.7	0.66	0.80	4.01
Range	132.5-149.0	48.7-62.5	152.3-167.5	201.5-219.0	0.48-0.66	0.75-0.90	3.76-4.04
Average±SD	139.64±6.65	55.28±5.201	159.10±6.21	210.86±6.47	0.58±0.152	0.83±0.063	3.93±0.113

Table-2: Mineral composition of walking legs in *Paratelphusa spinigera* (Range, Average and Standard Deviation)

The sodium, potassium, calcium and magnesium (55.28±5.201 mg/100g) were higher in the walking legs of *Paratelphusa spinigera*. Sodium recorded was maximum in walking legs (210.86±6.47mg/100g). Earlier studies, 297.80 ± 0.01 mg/g of sodium was recorded in land crab *C. armatum* (Omotoso, 2005), 3.010 mg/g in *P. vigil* (Sudhakar *et al.,* 2011), 1.90 mg/g in Chinese mitten crab *E. sinesis* (Chen *et al.,* 2007). Potassium was also recorded maximum in walking legs (159.10±6.21 mg/100g). In earlier studies, 367.19 ± 0.01 mg/100 g of Patassium was recorded in land crab *C. armatum* (Omotoso, 2005), 4.780 mg/g in *P. vigil* (Sudhakar *et al.,* 2011) and 2.73 mg/g in Chinese mitten crab *E. sinesis* (Chen *et al.,* 2007). The calcium was

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recorded as 139.64±6.652 mg/100g in walking leg tissues in *Paratelphusa spinigera*. Earlier reports of Omotoso (2005) in land crab *C. armatum,* Chen *et al.* (2007) in Chinese mitten crab *E. sinesis* and Sudhakar *et al.* (2011) agreed with the present study.

In the study, relatively low levels of zinc (3.93±0.113 mg/100g), copper (0.83±0.063 mg/100g) and iron (0.58±0.152 mg/100g) were observed in the leg tissues. The lowest values of carbohydrate, fat, ash, copper, zinc and iron content, highest values of moisture, protein, sodium, potassium, calcium and magnesium content were found in the investigation. Similar results have also been obtained by Philips *et al.* (1960) and Kalita *et al*. (2016).

The investigation on proximate composition and mineral content in an edible walking leg of freshwater crab, such as *Paratelphusa spinigera* is utmost necessary to ensure the values in nutritional aspects. Nutrients are required in order to build and repair cells and body tissues, maintain the functions of different organs, different bones and provide energy. Good nutrition is essential for good health and eating nutritious food like *Paratelphusa spinigera* can help to prevent from ailments or from illnesses or from diseases. Minerals are essential nutrients because of their role in metabolism. Zinc is known to be involved in most metabolic pathways in hormones, plants and animals. Iron has several important functions like carrier of oxygen to the tissues or from the lungs by RBC or haemoglobin, as a transport medium for electrons and as an integrated part of enzymes. The human body contains small amount of these minerals and the deficiency of minerals induces a lot of malfunctions. Therefore, besides fishes, crabs are also the potential source of animal proteins and essential minerals for human beings.

REFERENCES:

1. Adeyeye E.I. (2002): Determination of the chemical composition of the nutritionally valuable parts of male and female common west-African fresh water crab, *Sudananautes africanus africanus*. Int. J. Food Sci. Nutr., 53:189-96.
2. Adeyeye E.I. and Kenni A.M. (2008): The Relationship in the Amino Acid of the Whole Body, Flesh and Exoskeleton of Common West African fresh water male Crab, *Sudananautes africanus africanus*. Pakistan Journal of Nutrition, 7: 748-752.
3. Akbar Z., Qasim R., Siddiqui P.J.A. (1988): Seasonal Variations in Biochemical Composition of Edible Crab (*Portunus Pelagicus Linnaeus*). J. Islam Acad. Sci., 1: 127-133.
4. Akin-Oriola A., Anetekhai M.A., Olowonirejuaro K. (2005): Morphometric and Meristic studies in two crabs: *Cardiosoma armatum* and *Callinectes pallidus*. Turkish Journal of Fisheries and Aquatic Sciences, 5: 85-89.
5. Aygul Kucukgulmez, Mehmet Celik, Yasemen Yanar, Beyza Ersoy, Mustafa C., Ikrikc I. (2006): Proximate Composition And Mineral Contents of The Blue Crab (*Callinectes Sapidus*) Breast meat, Claw meat and Hepatopancreas. Inter. J. Food Sci. Technol., 41: 1023–1026.
6. Celik M., Tureli C., Celik M., Yanar Y., Erdem U., Kucukgulmez A. (2004): Fatty acid composition of the Blue Crab (*Callinectes Sapidus*) in The North Eastern Mediterranean. Food Chem., 88: 271-273.
7. Chen D., Zhang W., Shrestha M.S. (2007): Compositional Characteristics and Nutritional Quality of Chinese Mitten Crab (*Eriocheir Sinesis*). Food Chem., 10: 1343 - 1349.
8. Chhapgar B.F. (1991): Seashore life of India. Nature Guides, Oxford University Press, Bombay, India. 18-224.
9. Cobb B.F., Conte F.S. and Edwards M.A. (1975): Free amino acids and osmoregulation in penaeid shrimp. J. Agric. Food Chem., 23: 1172-1174.
10. Dai A.Y. (1999): Fauna Sinica. Arthropoda: Crustacea: Malacostraca: Decapoda: Parathelphusidae, Potamidae. Beijing. Sci. Press, 501: 30.
11. Fang L.S., Tang C.K., Lee D.L., Chen I.M. (1992): Free amino acid composition in Muscle and Hemolymph of the Prawn, *Penaeus monodon* in different salinities. Nippon Suisan Gakkaishi. 58: 1095-1102.
12. FAO/WHO/UNU (1985): Energy and Protein Requirements. WHO Technical Report, Series No. 724. WHO, Geneva, Switzerland,13-205.
13. Finkers J. (1986): Los Yanomami Y Su Sistema Alimenticio. Vicariato Apostolico De Puerto Ayacucho, Puerto Ayacucho. Monografia 2: 262.
14. Kalita B., D.Kusre, K.C.Bhuyan, A.Q.Osmani (2016): Studies on amino acid composition of an edible freshwater crab, *Paratelphusa spinigera.*

Corresponding Author : email :

Anthropogenic Threats to Bio-diversity, Vol-2, Issue-2, 2016.
15. Khan P.A. (1992): Biochemical Composition, Minerals (Calcium and Iron) and Chitin content of two Portunid Crabs, *Scylla Serrata*, Forskal and *Portunus Pelagicus* Linnaeus available in and around the Coastal Region of Bangladesh, M.Sc. Thesis, Institute of Marine Science, Chittagong University. 112.
16. Kucukgulmez A., Celik M., Yanar Y., Ersoy B., Cikrikci M. (2006): Proximate composition and Mineral contents of the Blue Crab (*Callinectes Sapidus*) Breast meat, Claw meat and Hepatopancreas. Int. J. Food Sci. Technol., 41: 1023-1026.
17. Kuley E., Ozogul F., Ozogul Y., Olgunoglu A.I. (2007): Comparison of Fatty Acid and Compositions of the Body and Claw of Male and Female Blue Crabs (*Callinectes Sapidus*) from different regions of The Mediterranean Coast. Int. J. Food Sci. Nut., 12: 541-560.
18. Manivannan K., Sudhakar M., Murugesan R., Soundarapandian P. (2010): Effect of feed on the Biochemical composition of commercially important Mud Crab, *Scylla Tranquebarica* (Fabricius, 1798). Inter. J. Ani. Veter. Advan., 2: 16-20.
19. Mohapatra A., Rautray R.T., Patra A.K., Vijayan V., Mohanty R.K. (2009): Elemental Composition in Mud Crab *Scylla Serrata* from Mahanadi Estuary, India: *In Situ* Irradiation Analysis by External PIXE. Food Chem. Toxicol., 47: 119-123.
20. Mohapatra A., Rautray T.R., Vijayan V., Mohanty R.K., Dey S.K. (2007): Trace elemental characterization of some food Crustacean tissue samples By EDXRF Technique. Aquacult., 270: 552-558.
21. Musaiger A.O., Al-Rumaidh M.J. (2005): Proximate and Mineral composition of Crab meat consumed in Bahrain. Int. J. Food Sci. Nutr., 56: 231-5.
22. Nalan G., K. Dlua and P. Yerlikayaa (1995): Determination of proximate composition and mineral contents of Blue Crab (*Callinectes sapidus*) and Swim Crab (*Portunus pelagicus*) caught off the Gulf of 4. J. H. M. Bradburg, D. M. Hollowsy, Chemistry of Tropical Roots Crops, Signifance for Nutrition and Agriculture in the Pacifics, ACIAR Monograph, 6:201 (1995).
23. Ng PKL (1988): The Freshwater crabs of Peninsular Malaysia and Singapore; Singapore (Shinglee).
24. Oduro W., Ellis W.O., Oduro I. and Tetteh D. (2001): Nutritional quality of selected Ghanaian crab species. J. Ghana Sci. Ass., 3: 37-40.
25. Official Methods of Analysis (2000): AOAC, 17th edn., Washington DC, USA.
26. Omotoso O.T. (2005): Chemical composition and nutritive significances of the Land Crab *Cardisoma Armatum.* African J. Appl. Zoo. Environ. Biol., 7:68-72.
27. Prasad P.N., Neelakantan B. (1989): Proximate and essential amino acid composition in edible Crab, *Scylla Serrata*. Comp. Physiol. Ecol., 14: 34-37.
28. Radhakrishnan C.K. (2000): The Eggs of Marine crabs-an Unexploited Resource. ICLARM Quart., 23: 4-5.
29. Radhakrishnan C.K., Natarajan R. (1979): Nutritive value of the Crab, *Podopthalamus vigil* (Fabricius). Fish Technol., 16: 37 - 38.
30. Skonberg D.I., Perkins B.L. (2002): Nutrient composition of Green Crab (*Carcinus Maenus*) Leg meat and claw meat. Food Chem., 77: 401-404.
31. Soundarapandian P., Singh R.K. (2008): Biochemical composition of the eggs of commercially important Crab *Portunus pelagicus* (Linnaeus). Inter. J. Zool. Res., 4:53-58.
32. Sounderapandian P., Varadharajan D., Sivasubramanian C. and Irin Kumari (2014): Amino acid profile of Riged swimming crab, *C. Natator* Herbst. J. Aquaculture Res. and Development, 2155.
33. Sudhakar M., Raja K., Anathan G., Sampath Kumar P. (2011): Compositional characteristics and nutritional quality of *Podopthalamus vigil* (Fabricius). Asian J. Biol. Sci., 4:166 - 174.
34. Thirunavukkaras N. (2005): Biology, Nutritional evaluation and utilization of Mud Crab, *Scylla Tranquebarica* (Fabricius, 1798). Ph.D. Thesis. Annamalai University, India.
35. USDA (2003): National Nutrient Database for Standard Reference, Release 16, Nutrient Data Laboratory, Home Page, Available http:// www.nal.usda.gov/fnic/foodcomp/search.
36. Valverde M., M. J. Periago, M. Santaella and G. Ros (2000): The content and nutritional significance of minerals on fish flesh in the presence and absence of bone, Food Chem., 71, 503-509.
37. Vasconcelos P., Braz N.R. (2001): Proximate composition of the Deep Sea Crab, *Chaceon Affinis* from an exploratory fishery of Maderia Island

Corresponding Author : email :

(Portugal - Eastern Central Atlantic) North West Atlantic Fisheries Organisation. 1 - 6.

38. Zafar M., Siddiqui M.Z.H., Hoque M.A. (2004): Biochemical composition in *Scylla Serrata* (Forskal) of Chakaria, Sundarban Area, Bangladesh. Pak. J. Biol. Sci., 7: 2182-2186.

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International Journal of Fundamental & Applied Research
Website : www.ijfar.org ,(ISSN- 2320-7973 Volume-4 Issue -12 Month – March 2017 pp. (14 – 20)

A REVIEW ON CHARACTERISTICS OF IPOMOEA CARNEA PLANT

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ABSTRACT
The plant Ipomoea Carnea belongs to family Convolvulaceae. The Convolvulaceae are mostly Gemini herbs or shrubs, the pink morning glory, is a species of morning glory. This plant is formerly from the tropics of South America. This evergreen, flowering shrub has spread to Asia, Africa and North America. It is also found in India basically in Chhattisgarh and Madhya Pradesh. The stem of Ipomoea. carnea can be used for making paper. Its medicinal properties are used in traditional medicine in several countries and It is used in different traditional medical systems including Ayurveda, Siddha and Unani. The different parts of Ipomoea Carnea are used for extract as raw drugs and they possess verity of medicinal include root, stem, flower, fruit and leaf. Objective of this study is to we have summarized the existing knowledge and recent progress on the medicinal importance of Ipomoea Carnea.

INTRODUCTION

Ipomoea Carnea grows on a terrestrial land, which is locally available on road side's pond area and waste water lands. Morning glory, the name itself introduces the flicker flower which blooms with the sunlight, dries up in the afternoon and fades into the darkness of the night giving way to new flowers day after day. Morning glory is a shrub which grows to 10-12m high. The hindi and Marathi name beshram/behaya meaning shameless, refear to it is spreading extensively. The stem of Ipomoea Carnea is thick and develops into a solid trunk over several years with many branches from base. [1] The stem is erect, woody, hairy, and more or less cylindrical in shape and greenish in colour. The plant bloom in cluster of 4 inch pink flower all spring and summer long .It has alternate leaves the morning glory has similar heart shaped leaves that are a rich green and 6-9 inches long. The leaves are light green, heart shaped or somewhat lanceolate and 10-25cm long. The upper surface of leaf is dull green and the lower surface is paler. The leaves which receive lesser sunlight may grow larger than the leaves which receive full sunlight. [2] The flowers are pale rose, pink or light violet in lax, terminal, pedunculate cymes; fruits have aglabrous capsule; seed is silky Flowers of Ipomoea Carnea are axial. The pedicel is green, erect and cylindrical. Its length ranges between 1.5 – 2.2 cm and diameter ranges between 0.15 – 0.20 cm. [2]

Botanical classification of Ipomoea Carnea
Kingdom: Plantae
Sub kingdom: Tracheobionta
Division: Spermatophyta
Subdivision: Magnoliophyta
Class: Magnoliopsida – Dicotyledons
Subclass: Asteridae
Order: solanales
Family: convolvulaceae
Genus: Ipomoea.
Species: Ipomoea Carnea L.[3]

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Synonym-

Hindi: Beshram, Behaya; English: Morning glory; Oriya: Behayo; Marathi: Beshram; Bengali: Beshram;

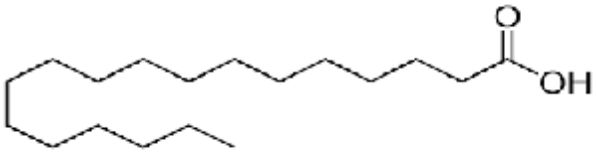
The extracts of Ipomoea Carnea plant possess anti-bacterial, anti-fungal, anti-oxidant, antimicrobial, anti-cancer, anti-convulsant, immune modulatory, anti-diabetic, hepatoprotective, anti-inflammatory, anxiolytic, , cardiovascular, Inhibition and wound healing activities[4]

Fig-Photographs of Ipomoea Carnea Plant

CHEMICAL CONSTITUENTS-

The literature survey reveals that the plant possess various bioactive compounds such as glycosides, alkaloids, reducing sugars, flavonoids, fatty acid, esters, alcohol1 and tannins. The leaves of this plant showed the presence of thirteen compounds which include hexadecanoic acid, stearic acid, 1, 2 diethyl phthalate, n-octadecanol, octacosane, hexatriacontane, tetracontane, 3-diethylamino-1- propanol.According to literature survey that the plant Ipomoea Carnea possess a large number of useful bioactive compounds such as flavonoids, fatty acid, esters, Alcohol glycosides, alkaloids, reducing sugars, [5] And tannins [6] . The leaves of Ipomoea Carnea plant Showed the presence of thirteen bioactive compounds which include hexadecanoic acid, stearic acid, 1, 2 diethyl phthalate, n-octadecanol, octacosane, hexatriacontane, tetracontane, 3-diethylamino-1-propanol [7] (Fig. 2&3)

Hexadecoic acid



Steric acids

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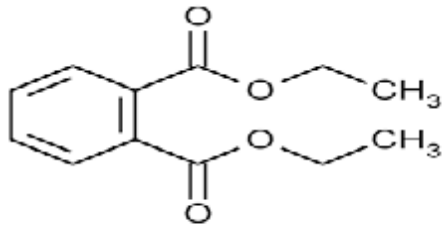
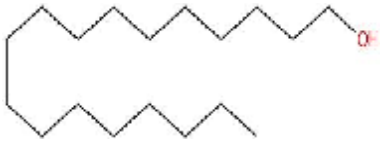
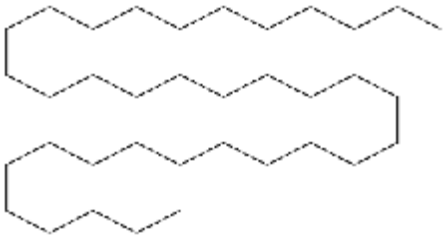


1, 2 diethyl phthalate



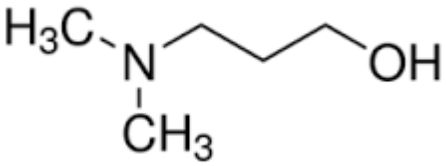
N- Octadecanol

Octacosane



Hexatriacontane

Tetracontane



3-diethylamino-1- propanol

Fig. 2 Structure of compounds present in Ipomoea Carnea.

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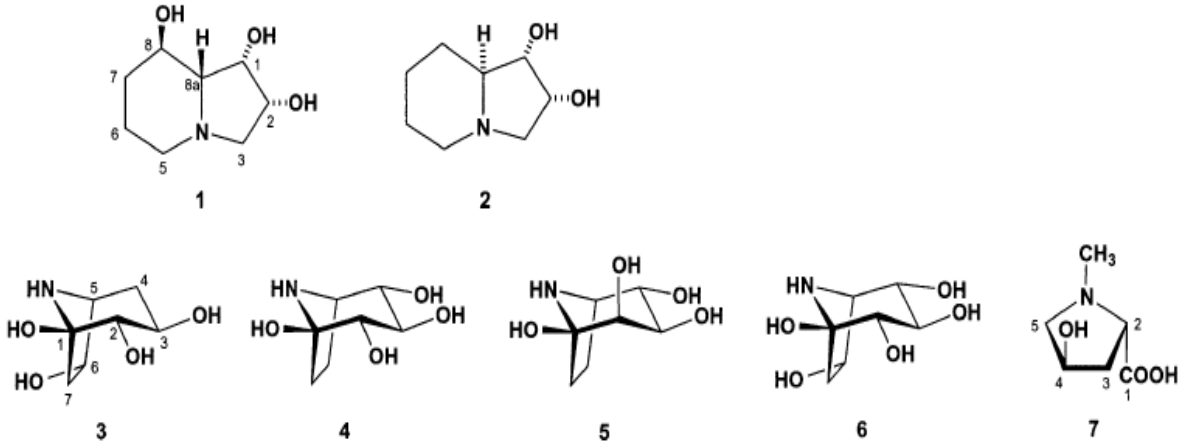

Fig. 3
Structures of alkaloids isolated from Ipomoea Carnea

Proximate chemical analysis-

Proximate Chemical analysisof Ipomoea Carnea includes various parameter such as cold water solubility, hot water solubility, ether solubility, alcohol benzene solubility, , lignin content, holocellulose, hemicellulose, alpha cellulose, acetyl content, methoxyl content, uronic anhydride, 1% NaOH solubility, pentosan content ash Content[8] The values for proximate chemical analysis tabulated in Table 1.

S.	No.	Parameters Results
1.	Cold water solubility	8.43
2.	Hot water solubility	12.60
3.	Ether Solubility	3.04
4.	Alcohol benzene solubility	8.46
5.	1% NaOH solubility	28.6
6.	Pentosan Content	17.60
7.	Lignin content	18.08
8.	Holocellulose	67.49
9.	Hemicellulose	22.40
10.	Alpha cellulose	46.45
11.	Acetyl content	4.32
12.	Methoxyl content	4.76
13.	Uronic anhydride	3.45
14.	Ash Content	6.14

Table 1: Proximate Chemical Analysis of *Ipomoea Carnea*

Note: The values are expressed in % on OD woody material basis

Important characteristics of Ipomoea Carnea --

Pharmacological Cheristristrices:-

The plant Ipomoea Carnea had excellent potential as an Anti-inflammatory Activity, Antioxidant Activity, Antidiabetic Activity,

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Antimicrobial Activity, Wound Healing Activity, Immuno modulatory Activity, Cardiovascular Activity, Embryotoxic effect, Antifungal Activity, Hepatoprotective Activity, Inhibition Activity and Anxiolytic Properties [9]

Acording to other research work that the acetone extract shows antimicrobial activity against two strains, Ptroteus vulgaris and Salmonella typhimurium. Ethanol extract also exhibits indicative activity against Pseudomonas auroginosa. N-Hexane and ethyl acetate extracts do not show any antimicrobial activity against the said strains. [10] Aqueous extracts of mature green leaves of Ipomoea Carnea were used for anti – inflammatory activity. In other work antidiabetic property of Ipomoea Carnea leaves were carried out in normal rats and in streptozotocin induced diabetic rats. The aqueous extract of Ipomoea Carnea significantly reduces the blood glucose level of rats. It increases the glucose tolerance in normal rats [11] In one study n- hexane (1), ethyl acetate (2), acetone (3), ethanol (4) and acetone fraction extract were prepared from Ipomoea Carnea leaves. Antifungal activity of Ipomoea Carnea has been identified against Alternaria alternate and curvularia lunata [12] Chloroform and Methanol extract of Ipomoea Carnea show antifungal activity against eleven pathogenic and nonpathogenic fungi.[13] In one study in vitro antioxidant activity of Ipomoea Carnea using different models of screening viz. DPPH radical scavenging, nitric oxide scavenging assay, ABTS radical scavenging, iron chelating activity, and alkaline DMSO assay. Their results showed good dose dependant free radical scavenging property in all the models. Phytochemical analysis revealed the presence of major phytocompounds like alkaloids, glycosides, phenolics and saponins. The antioxidant property may be related to the polyphenols and flavonoids present in the extract of Ipomoea Carnea. [14]

Ipomoea Carnea as a Biocompost--

Ipomoea Carnea is useful to increase the microbial activity of bio-compost. The organic content of bio-compost also increases after treatment of Ipomoea Carnea. [15]

Inhibition Activity_--Ipomoea Carnea is an effective agent against the weightloss for mild steel due to rusting_[16]

Ipomoea Carnea as an Activated Carbon--

It has been observed that activated carbon from Ipomoea Carnea is a suitable and best raw material for the production of activated carbon. It is effective in the removal of heavy metal from aqueous solution. It was concluded that the activated carbon produced from Ipomoea Carnea by acid activation has better adsorbing capacity of heavy metal than the raw adsorbent. Activated carbon is widely used for the purpose due to the large surface area available for adsorption or chemical reactions .The Ipomoea Carnea stem can be useful as low cost, efficient, potential and ecofriendly adsorbent for the removal heavy metal of industrial effluents [17]

Ipomoea Carnea as a potential source of textile--

Ipomoea Carnea content of lignin t is about 17% and cellulose is over 55% That's mean it is a fibrous material and can be used as filler for manufacturing of light weight polymer material which provides an effective means of utilization of a large quantity of this diffuse shrub. [18]

Ipomoea Carnea as a potential source of Energy

World is distress from energy trouble. Ipomoea Carnea is a potential biogas source of Energy. Ipomoea Carnea biomass and distillery waste admixture proved to be the best substrate. Ipomoea Carnea has a suitable methane content which makes it suitable for energy production [19].

Insecticidal Property:--

Ipomoea Carnea benzene and chloroform extracts give way to the compounds such as neophyadiene, 1-decanol, tetradecanoic acid, pentadecane, 1-iodo-2-methylundecane, trans-caryophyllene, eicosane, 2-butenoic acid and cholestan-3-one. Cholestan-3-one is a steroidal compound and it contains a high insecticidal property. [20]

As a Pesticide--

So many research work show tht the I. carnea extracts contain a pestiside property in Ipomoea Carnea benzene and chloroform extracts yielded the compounds such as neophyadiene, 1-decanol, tetradecanoic acid, pentadecane, 1-iodo-2-

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methylundecane, transcaryophyllene, eicosane, 2-butenoic acid and cholestan-3-one. Cholestan-3-one is a steroidal compound and it has a high pesticide property. [21]

General toxicity--

Many research studies show the toxicological effects of I. carnea, mainly in goats and sheeps. Chronic ingestion of I. carnea has been reported to cause general weakness, loss of body weight, loss of hair, locomotor disturbance, loss of reflexes, intero-hepato-nephropathy, muscle tremors, ataxia, posterior paresis, paralysis and even death [22],[23]

Conclusion

Ipomea Carnea commonly found in waste lands. It contains many chemical ingredients which are responsible for various pharmacological medicinal properties. The different parts of Ipomoea Carnea have been screened for various pharmacological activities such as Glycosidase Inhibitory Activities, Anti- Inflammatory Activity, Antioxidant Activity,
Antidiabetic Activity, Antimicrobial Activity, Wound Healing Activity, Immune modulator Activity, Cardiovascular Activity, Embryotoxic effect, Antifungal Activity, Anti-cancer, Hepatoprotective Activity, Inhibition Activity and Anxiolytic Properties. So the Ipomoea Carnea has a good capacity for the development of new good effective drugs in future. Ipomoea Carnea can be used as Biopesticide, Ipomoea Carnea contains an effective property of activated carbon, which is used in the removal of heavy metal from aqueous solution. The Ipomoea Carnea stem can be useful as low cost, efficient, potential and ecofriendly adsorbent for the removal heavy metal of industrial effluents.

Refrences

[1] Satish a. Bhalerao and Nikhil c. Teli 2016 “significance of Ipomoea Carnea jacq.: a comprehensive review ”Asian journal of science and technology vol. 07, issue, 08, pp.3371-3374, august, .

[2] Afifi, M.S., Amer, M.M.A. and El-Khayat S.A. 1988 Macroand “Micro morphology of Ipomoea Carnea Jacq. Growing in Egypt.Part I. Leaf and flower” Mansoura Journal of
Pharmaceutical Science. 3: 41-57. .

[3] Sharma, A and R. K. Bachheti . **2013** “A review on Ipomoea Carnea”. Int J pharm Bio sci; 4(4): 363 – 377
.

[4] Shankul K, Prasad A. K, Iyer S. V, Patel J. A, Patel H. A, and Vaidya S. K, 2012 “Pharmacognostical, phytochemical and pharmacological review on Ipomoea Carnea.” Novus International Journal of Pharmaceutical Technology, Vol. 1, No. 4 .

[5] Nandkumar, P. 2009. “Pulp Blending and its Effects on the Strength Properties of Ipomoea Carnea” jacq. Journal of Environmental Research and Development. **3**(4):1088-1093. .

[6] Afifi, M.S., Amer, M.M.A. & El-Khayat S.A. 1988 “Macro-and micro morphology of Ipomoea Carnea” Jacq. Growing in Egypt. Part I. Leaf and flower. Mansoura Journal of Pharmaceutical Science. **3**: 41-57. .

[7]. Tirkey, K., Yadava, R.P., Mandal, T.K. & Banerjee, N.L. 1988 “The pharmacology of Ipomoea Carnea”. Indian Veterinarian Journal. **65**: 206- 210. .

[8] Nandkumar P, 2009 “Pulp Blending and its Effects on the Strength Properties of Ipomoea Carnea” jacq, Journal of Environmental Research And Development Vol. 3 No. 4, .

[9] Sharma, A and R. K. Bachheti 2013. “A review on Ipomoea Carnea.” Int J pharm Bio sci; 4(4): 363 – 377
.

[10] Adsull,V.B., E.Khatiwora , Rasika Torane , N.R. Deshpande. 2012 “Antimicrobial activities of Ipomoea Carnea leaves.” J. Nat. Prod. Plant Resour., 2 (5):597-600. .

[11] Kadiyawala A. L. A, et al 2012. “Comparative Antidiabetic Studies of Leaves of Ipomoea Carnea and Grewia asiatica on Streptozotocin Induced

Corresponding Author : email : shikhasen_2007@yahoo.co.in

Diabetic Rats" International Journal of Pharmaceutical & Biological Archives, 3 (4) : 853-857, .

[12] . Agarwal R. K, Uppadhay, R. K, (2006). Indian Drugs Phar. Ind, 14 (2) : 23-25, (1997).
46. Guleria, S. and A. Kumar, J. Cell Mol. Biol., 5: 95 - 98, .

[13] Ikeda K Kato A, Adachi I, Haraguchi M, and Asano N, J. (2003) Agric. Food Chem., 51: 7642-7646, .

[14] Ambiga, S and M. Jeyaraj. 2015. "Evaluation of in vitro Antioxidant Activity of Ipomoea Carnea" Jacq. Int.J.Curr.Microbiol.App.Sci 4(5): 327-338. .

[15] Moindi, J., Onyambu, E., Kiprono, S. J., Titus, S. K. and Onyancha, W. 2012 "Studiesof Biodegradation of Ipomoea Carnea Weed from Kavinadu Big Tank in Pudukkottai District (India)." Journal of Natural Sciences Research. **2**(6): 86-93. .

[16] Srivastava, M. & Srivastava, K. 2012 "Aqueous extract of Ipomoea Carnea leaves as green corrosion inhibitor for mild steel in pickling paste." Biointerface Research in applied chem. **2**(1): 248 – 257. . .

[17] Miranda, M.A., Dhandapani, P., Kalavathy, M.H. and Miranda, L.R . 2012. "Activated Ipomoea Carnea a biosorbent for the copper sorption from aqueous solution" . (www.ntu.edu.sg/pbast/_abstract/104.Lima.Miranda.pdf.).

[18] Basumatary, K.K. & Acharya S.K. 2013 "Investigation into mechanical properties of Ipomoea Carnea reinforced epoxy composite." International Journal of Macromolecular Science. **3**(3): 11-15..

[19] Deshmukh, H.V.. 2012 "Economic Feasibility and Pollution Abetment Study of biogas Production Process utilizing Admixture of Ipomoea Carnea and Distillery Waste," Journal of Environmental Research and Development. 7(2): 222-23

[20] Sahayaraj, K and C. Ravi. 200 "Preliminary phytochemistry of Ipomoea Carnea Jacq. and Vitex negundo linn. Leaves." Int. J. Chem. Sci.: 6(1):1-6. .

[21]. De Balogh KK, Dimande AP, van der Lugt JJ, Molyneux RJ, Naudé TW, Welman WG. 1999"A lysosomal storage disease induced by Ipomoea Carnea in goats in Mozambique." J Vet Diagn Invest; 11:266–73. .

[22]. Idris OF, Tartour G, Adam SE, Obeid HM. 1973 "Toxicity to goats of Ipomoea Carnea." Trop Anim Health Prod; 5:119–23. .

[23]. Damir HA, Adam SE, Tartour G . 1987. "Effects of Ipomoea Carnea on goats and sheep." Vet Hum Toxicol; 29:316–19. .

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Corresponding Author : email : shikhasen_2007@yahoo.co.in

International Journal of Fundamental & Applied Research
Website : www.ijfar.org ,(ISSN- 2320-7973 Volume-4 Issue -12 Month – March 2017 pp. (21 – 26)

SYNTHESIS AND CHARACTERIZATION OF ACTIVATED CARBON DERIVED FROM IPOMOEA CARNEA STEM WASTE

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ABSTRACT
Activated carbon was derived from Ipomoea Carnea stem west through acid treatment in the temperature ranging from 500˚C to 800˚C. It was characterized by pH, iodine value, moisture content, ash content, pore volume and porosity. Surface structure investigation was carried out by Scanning Electron Microscopy (SEM). The study reveals that efficient activated carbon could be obtain from Ipomoea Carnea stem west by control activation with acid.

INTRODUCTION

People are concerned about contaminants in their drinking water that cannot be removed by water softeners or physical filtration.[1] Therefore, it needs treatment to make it safe for human and all living things in this world. There are many types of treatment that can improve water quality. One of the treatments is using activated carbon as a wastewater pollutant removal. Activated carbon is a form of carbon species that is processed and prepared to have high porosity and very large surface area available for adsorption. [2] Activated carbon has been quite successful for removal of impurities from exhaust gas and waste water streams. The highly porous nature of the carbon provides a large surface area for contaminants to get deposited. The adsorption takes place because of the attractive force between the molecules. There is wide variety of activated carbons which exhibit different characteristics depending upon the raw materials. Agricultural waste material can effectively be converted in to activated carbon using Ipomoea Carnea stem waste.

Solid waste disposal has become a major problem in India; therefore these wastes have been explored for the preparation of activated carbon by various techniques.Some researchers and scientist have been working on synthesis and characterization of activated carbon from agricultural waste materials. So many agricultural by products and waste materials are used for the preparation of activated carbons include olive stones[3], almond shells [4], apricot and peach stones [5], maize cob[6], linseed straw, saw dust [7], rice hulls[8], cashew nut hull, cashew nut sheath[9] coconut shells and husks[10], eucalyptus bark[11],linseed cake, tea waste ash[12]. Besides these, other sources of activated carbon are sulfonated coal [13], tyre coal dusts [14] all these activated carbons have been successfully used for the adsorption processes. Therefore, carbons with excellent surface properties and specific functionalities should be developed to create a high affinity for adsorbate adsorption.

In this research work we use Ipomoea Carnea stem waste for the preparation of activated carbon. The plant Ipomoea Carnea belongs to family Convolvulaceae. The Convolvulaceae are mostly Gemini herbs or shrubs, the pink morning glory, is a species of morning glory. This plant is formerly from the tropics of South America. This evergreen, flowering shrub has spread to Asia, Africa and North America. It is also found in India basically in Chhattisgarh and Madhya Pradesh. It has been

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International Journal of Fundamental & Applied Research
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observed that Ipomoea Carnea is a suitable and best raw material for the production of activated carbon.

The present work is divided in following parts:

1. Synthesis of activated carbon from Ipomoea Carnea stem waste.
2. Characterization of activated carbon prepared from Ipomoea Carnea stem waste.

Material and method

Collection of sample

The Ipomoea Carnea (morning glory), a low-cost and abundantly available plant, Ipomoea Carnea stems were collected in and around Neelbad Bhopal M.P., India. The Ipomoea Carnea (Morning Glory) was certified by Dr. Jiya Ul Hussan assistant professor department of Botany, Safiya College Bhopal M.P. The Ipomoea Carnea (Morning Glory) stem , were cut into small pieces and dried in sunlight until the moisture was evaporated The stem of Ipomoea Carnea was dried at room temperature for a few days and then oven dried at 110 ^{0}C overnight. Dried material was ground to an average particle size of 1mm.

Fig 1. -- Ipomoea Carnea Plant

Fig 2.—Activated carbon derived from Ipomoea Carnea Plant

Activation with HCL:

The dried materials were used for the preparation of activated carbons using chemical activation methods .The chemical impregnation of the activating agent into the Ipomoea Carnea, *Ipomoea carnea* stem waste material was treated with HCL for a period of 24 hours. Then the material was placed in the muffle furnace and carbonized at 400°C. The dried materials were powdered and activated in a muffle furnace kept at 800°C for a period of 60 minutes. After activation, the carbon obtained was washed sufficiently with plenty of water, dried and sieved then to desired particle size. [15]

Characterization

(i) Moisture Content Determination

A 1.0 gm of the activated carbon sample was collected and dried in an oven for four hours at 150^{o}C, until the weight of the sample became constant .[16]

$$X_o = \frac{W_1 - W_2}{W_1}$$

Where:

X_o = Moisture content on wet basis

W_1 = Initial weight of sample, gm

W_2 = Final weight of sample after drying (gm)

(ii) pH

1 gm of the sample was weighed and dissolved in 3 ml of de-ionized water. The mixture was heated and stirred for 3 minutes to ensure

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proper dilution of the sample. The solution was filtered out and its pH was determined using a digital pH meter [17]

(iii) Iodine Adsorption Number (IAN)

1 g sample was weighed into a beaker and 25 ml of standard iodine solution (0.023 M) added. The mixture was swirled vigorously for 10 minutes and filtered by means of a funnel impregnated with clean ashless glass wool. 20 ml of the clear filtrate was titrated with the standard (0.1095 M) thiosulphate solution to the persistent of a pale yellow colour. 5 ml of freshly prepared starch indicator was added and titration resumed slowly until a colourless solution appeared, the procedure was carried out two more times. The titrations were also repeated with 20 ml portions of the standard iodine solution not treated with the sample to serve as the blank titration. [17] The iodine number (IAN) was calculated from the relationship

$$IAN = \frac{12.69\ N\ (V_2 - V_1)}{W}$$ mole iodine/g sample

Where:
N is the normality of thiosulphate solution
V_1 is the volume of the thiosulphate (ml) used for the titration of the sample –treated aliquot.
V_2 is the volume of the thiosulphate (ml) used for the blank titration,
W is the mass of the sample used (gm).

(iv)Ash content

2.0 grams of sample was placed into a crucible, and reweighed with its content heated in a furnace at 900˚C for 3 hours. The sample was cooled to room temperature and reweighed. Ash content was calculated between the differences in weight. [17]

(v) Fixed carbon content:

Fixed carbon FC = 100 – (% moisture content+ % volatile matter + % ash content) [17]

(vi)Volatile Matter Determination:

The temperature was adjusted in the reaction zone of the muffle furnace containing empty crucible to 900 ^{0}C, weighted 1 gm of the sample in to each crucible placed the lids on the crucible ,transfer to the muffle and leaved for exactly 7 min at 900 ^{0}C then removed, allow to cool and reweighted the crucible. [18]

The volatile matter content on dry basis, Vm in %, is given by

$$\mathbf{Vm\%} = \frac{100(B-F)-Mc\ (B-G)}{(B-G)(100-Mc)}$$

Where
B=mass in gm of the crucible, lid and sample before heating

F= mass in gm of the crucible, lid and sample after heating

G= mass in gm of the empty crucible and lid

Mc=moisture, as a percentage by mass in the sample as analyzed determined

BET Test (Brunauer, Emmett and Teller)--

The results of BET surface area, macropore, mesopore and micropore volumes of the produced activated carbon The surface areas were higher for HCL activated carbons and this is expected because chemical activation normally develops more porosity and it gives high surface area .The increase BET surface areas and microspore structure of acid activated carbons was brought about by oxidation of the carbons by HCL. [19]

Scanning electron microscope analysis (SEM)--

The surface morphology of the activated carbon was tested using scanning electron microscopy. At such magnification, SEM micrographs clearly revealed that wide variety of pores are present in activated carbon along with fibrous structure. It is also found that there are holes and caves type openings on the surface of the adsorbent. [20]

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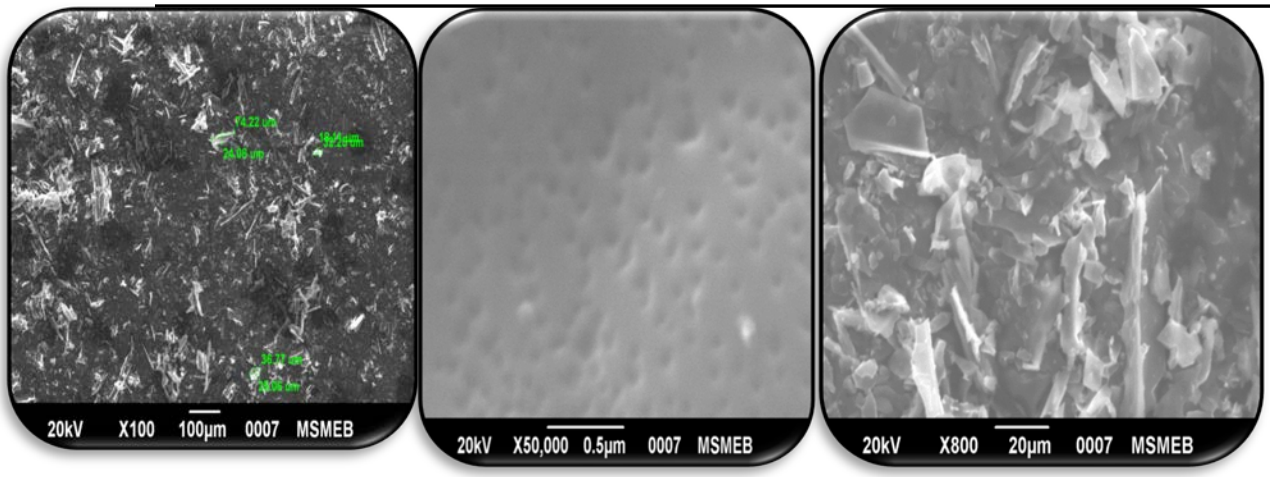

Fig 3. SEM of activated carbon

RESULTS AND DISCUSSION

The results of this research work show that it is possible to prepare activated carbon with relatively high surface areas and pore volumes from Ipomoea Carnea by chemical activation. The activated carbon was characterized to determine: pH, moisture content, bulk density, pore volume, porosity, and ash content. Iodine no. is a measure of the micro pore content of the activated carbon is 254 mole iodine/g sample .Moisture content of activated carbon activated with HCL have less than 1%, Studies have shown that lower moisture content increases the rate of adsorption of contaminants [21]. Ash determination shows that increase in carbonization temperature reduces the ash content. It is known that materials with the lowest ash content are most active. The pH of sample is 6.5.The result showed that the activated carbons activated with HCL are neutral after washing. Increase in percent removal for activated carbon is due to its porous nature which is detected by Scanning Electron Microscopy (SEM).

Table-1 Characteristics of activated carbon--

S NO.	**PARAMETERS**	**OBSERVATIONS**
1.	**Moisture content in 2.0g**	**2.3%**
2.	**pH**	**6.5**
3.	**Iodine adsorption number(IAS)**	**254**
4.	**Ash content**	**1.40%**
5.	**Fixed carbon %**	**81%**
6.	**ccl_4 adsorption capacity in %**	**64%**
7.	**Pore size/value Å**	**1.89839 nm**
8.	**BET Surface area in m2 /g**	**1159.06 m^2/g**
9.	**Langmuir Surface area in m2 /g**	**2152.48 m^2/g**
10.	**Volatile matter**	**15.3%**

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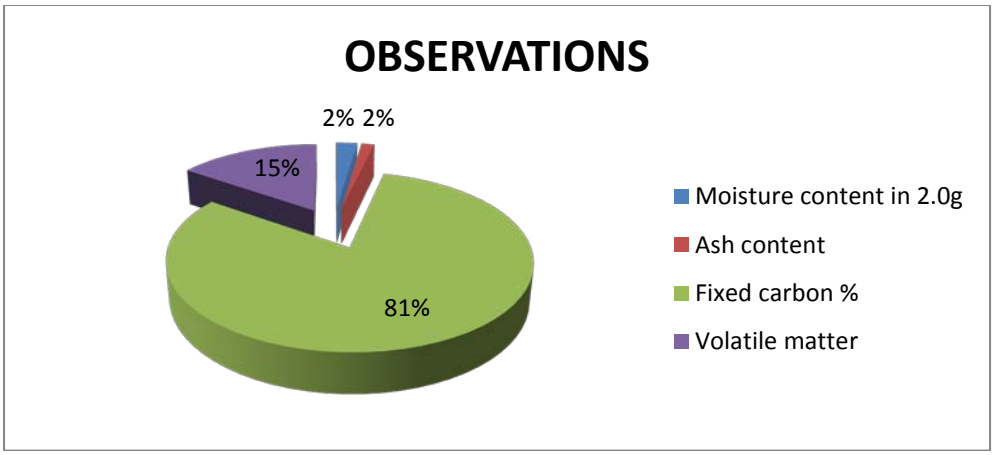

Fig.4. -- Proximate analysis of activated carbons derived from Ipomoea Carnea

CONCLUSION

This research work conduct synthesis of activated carbon and many characterization techniques like proximate analysis, bulk density, BET surface area, pH, Pore volume, iodine number test. The surface morphology of the activated carbon was tested using scanning electron microscopy (SEM). All these analysis of activated carbon provides a good idea about the physical and chemical properties of sample. From this analysis it is found that, the fixed carbon content of Ipomoea Carnea activated carbon is higher than other. Thus it can be concluded that the synthesis and characterization of activated carbon by chemical & thermal conversion of agricultural waste materials have great potential as industrial adsorbents.

Furthermore, the utilization of Ipomoea Carnea stem waste to make activated carbon could be promising materials to produce carbonaceous adsorbents at low cost, economically viable and eco-friendly for the treatment of dye house wastewater.

Refrances

[1]Thompson T, Sobsey M, Bartram J. 2003 “Providing clean water, keeping water clean: an integrated approach” Int J. Env Health Res, 13:S89-S94, .
[2]Ahmedna, M. Marshall, W. E. And Rao, R.M. 2000. “Production of granular activated carbons from select agricultural by-products and evaluation of their physical, chemical and adsorption properties” Biosource Technology, 71: 113-123,
[3] Lopez-Gonzalez D J, 1984. Adv Sci Techno, 1,103. .
[4]. Linares-Solano, Lopez-Gonzalez D J, Molina–Sabio M and Rodriguez-Reinoso F, 1980.
J Chem Tech Biotechnol , 30, 65,.
[5] Nasser M M and El-Geundi M S, 1991 J Chem Biotechnol , 50, 257 .
[6]. Bousher A, Shen V and Edyvean R G1997. J, Wat Res,31, 2084 .
[7]. Kadirvelu K, Palanivel M, Kalpana R and Rajeshwari S, 2000,
Bioresource Technol, 74, 263, .
[8]. Srinivasan K, Balasubramanian N and Ramakrishna T V, 1998.
Ind J Environ Health, 30, 376, .
[9] Rengaraj S, Banumathi A and Murugesan B, 1999 Ind J Chem Technol, . 6, 1.
[10]. Banerjee S K, Majmudar S, Roy A C, Banerjee S C and Banerjee D K, 1976. Ind J Technol, 14, 45, .
[11] Morais L C, Goncalves E P, Vasconcelos L T and Beca C G G, 2000.
Environ Technol, 21, 577, .

Corresponding Author : email : shikhasen_2007@yahoo.co.in

[12]. Balasubramainan M R and Muralisankar I, 1987. Ind J Technol, 25, 471, .
[13] Mittal A K and Venkobachar C, 1989. Ind J Environ Health, 31,105,
[14] A. Lucchesi..G. Maschio . 1989. "Semi-active carbon and aromatics produced by pyrolysis of scrap tires" Conservation & Recycling Volume 6, Issue 3, Pages 85-90, .
.
[15] I. Arockiaraj, V. Renuga **1989.** "Sorption kinetics and dynamic studies of basic dye by lowcost nanoporous activated carbon derived fromIpomoea Carnea stem waste by sulphate process" Int J Nano Corr Sci and Engg ,2(5) , 245-254,..
[16]. Hameed, B.H, Din, A.T.M and Ahmad, A.L. 2006. Journal of hazardous materials. 141(3), 30 – 60, .
[17]Madu P. C. and Lajide L. J. 2013. "Physicochemical characteristics of activated charcoal derived from melon seed husk'' Chem. Pharm. Res., 5(5):94-98, .
[18]CEFIC Europian Council of chemical manufactures federation 1986 "test method for activated carbon", April .
[19]Ajayi OA, Olawale A.S. 2009. A "comparative study of thermal and chemical activation of Canarium Schweinfurthii Nutshell". J. Appl. sci. Res., 5(12): 2148-2152,.
[20] Chandrakant d. Shendkar*1, rasika c. Torane2, kavita s. Mundhe2, sangita m. Lavate1, avinash b. Pawar1, nirmala r. Deshpande12013. . "Characterization and application of activated carbon prepared from waste weed" international Journal of Pharmacy and Pharmaceutical Sciences · Int J Pharm Pharm Sci, Vol 5, Issue 2, 527-529, March .
[21] Rengaraj, S., Moon, S.-H., Sivabalan, R., Arabindoo, B. and Murugesan, V. 2002. "Agricultural Solid Waste for the Removal of Organics: Adsorption of Phenol from Water and Waste Water by Palm Seed Coat Activated Carbon'' Waste Management, 22, 543-548, . http://dx.doi.org/10.1016/S0956-053X (01)00016-2 1.

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 Corresponding Author : email : shikhasen_2007@yahoo.co.in

International Journal of Fundamental & Applied Research
Website : www.ijfar.org ,(ISSN- 2320-7973 Volume-4 Issue -12 Month – March 2017 pp. (27 – 29)

STUDIES ON STATIC PROPERTIES OF SILVER IODIDE

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ABSTRACT
The static properties of silver iodide are calculated using a three-body interaction potential. This includes the prediction of third order elastic constant (TOEC), Fourth order elastic constant (FOEC) and pressure derivatives second order elastic constant (SOEC) and third order elastic constant (TOEC).The experimental and theoretical results are in good agreement.

INTRODUCTION

Silver iodide is an inorganic compound with the formula AgI.The compound is a bright yellow solid but samples almost always contain impurities of metallic silver that give a gray coloration.The silver contamination arises because AgI is highly photosensitive.. There are many of the crystal properties which cannot be explained without including the static contributions arising from the potential energy expression. These crystal properties are the thermal expansion, the specific heat beyond 3R(R is the gas constant) the thermal conductivity and higher order elastic constants and their pressure and temperature variations among them are of special interest because they are related to all the static properties of solids. The coefficient of first order anharmonic term in the multi-pole interaction potential determines the static properties such as thermal expansion pressure dependence of SOECS etc. The thermal expansion produces the difference between the adiabatic and isothermal elastic constant which provide physical insights into the nature of bonding and interatomic forces in solids.

Several investigators (1-7) have studied the Third order elastic constant (TOEC) and pressure derivatives second order elastic constant (SOEC) using both two-body (1-3) and three-body (4-7) potentials. The latter potentials have given their prediction better than those revealed by other potential (1-3).Elastic constants are measured by Lundqvist Potential (8) Singh and Verma (9) Karlsson (10). In the present paper, we have used three-body potential to explain the static properties of silver iodide.

Calculations have been performed using the expression for the third and fourth order elastic constant Given by Verma and co-workers (4) and those for the pressure derivatives of SOE constants are given by Garg et al (5) respectively. The essential theory and calculations are given in section 2. The results are presented and discussed in section 3.

2. THEORY AND METHOD OF CALCULATIONS:

Interaction potential energy of rock salt structure solid with contribution from the long-range coulomb and three-body interactions and the short-range repulsive and van der Waals dipole-dipole and dipole –quatrapole attractions is given by

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$W(r) = \alpha_m Z(Z+6\ f(r))/r + [W_1(r)+W_2(r)]\ e_2$ (1)

First term is the Coulomb interaction with a α_m as the Madelung constant, Ze is the ionic charge and e is the electronic charge. Here r (=r_0) and r_1 (=$2r_0$) are the first and second neighbor distances. f(r) is the three-body force parameter dependent on r.W_1 and W_2 are the short-range interactions defined as

$W_1(r) = b\beta/e_2\beta_{+-} \exp(r_+ + r_- - r)/\rho_{+-} - C_{+-}/r_6 - d_{+-}/r_8$ (2)

$W_2(r') = b\beta/e_2\ \beta_{++}\exp(2r_+ + r')/\rho_{++} + b\beta_{--}/e_2\exp(2r_- - r')/\rho_{--} - (c_{++}+c_{--})/r'_6 - (d_{++}+d_{--})/r'_8$ (3)

Where $\beta_{ij} = 1+(z_i/n_i)+(z_j/n_j)$ (4)

With n_i as the number of electrons in outermost orbit. Here, b and ρ are the repulsive strength and hardness parameters, respectively. In our calculations value of ionic radii (r_i) and van der Waals coefficients (c_{ij} and d_{ij})have been taken from Singh(9) and co-workers(11-20).The values of ρ_{ij} for the cesium bromide have been taken from Hafemeister and Flygare(21).The values of b for them have been evaluated from the equilibrium condition

$dW(r)/dr = 0$ at $r=r_o$ (5)

Using the values of f(r) obtained from the knowledge of overlap integral and its derivatives from the knowledge of overlap integral (5).

$f(r_0) = f_0 \exp(-r_0\backslash\rho_{+-}) = €_{+-}S_{+-2}$ (6)

With $f_0 = A_{+-}(1-2r_+/r_0)$ (7)

Values of overlap integral (S_{+-}) and constants (A_{+-}) are directly taken from(14). Values of parameters (ρ_{ij}, b and f_0) have been given in Table 3.2 together with the equilibrium nearest neighbour distance r_0,which is the only input data used for the calculation of the parameter b.

3. RESULT AND DISCUSSIONS

TABLE: 3.1 Values of input for ionic crystal.

CRYSTAL (AgI)	
r_0	10^{-8} cm (a)
r_+	10^{-8} cm (b)
r_-	10^{-8} cm (b)
C_{11}	10^{11} dyne/cm^2 (a)
C_{12}	10^{11} dyne/cm^2 (a)
C_{44}	10^{11} dyne/cm^2 (a)

Table 3.2 Model Parameters for ionic solids

CRYSTAL	ρ	b (in 10^{-12} erg)	f (r)
AgI	0.27	0.17	-000018

Table 3.3 Third order elastic constants (TOECs) 10^{11} dyne/cm^2 for ionic crystals.

Crystal	C_{111}	C_{112}	C_{166}	C_{123}	C_{144}	C_{456}
AgI	-3.25	-1.45	-1.45	-1.33	-1.30	-1.25

Table-3.4 Calculated values of fourth order elastic constants (FOECs) (in 10^{11} dyne/cm^2) for ionic crystals.

Crystal	C_{1111}	C_{1112}	C_{1166}	C_{1122}	C_{1266}	C_{4444}	C_{1123}	C_{1144}	C_{1244}	C_{1456}	C_{4466}
AgI	33.60	7.90	7.91	8.80	8.80	8.81	8.00	7.20	7.22	7.01	7.01

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Table 3.5 Pressure Derivatives of Second Order Elastic Constants (SOECs) (10^8 dyne /cm^2).

Crystal	dc' 44 /dp	ds' /dp	dk'/dp
AgI	2.41	0.60	6.60

Table 3.6: Calculated values of pressure derivatives of third order elastic constants (TOECs).

Crystals	dc 111/dp	dc 112/dp	dc 116/dp	dc 123/dp	dc 144/dp	dc 456/dp
AgI	-76.61	-47.72	-43.61	-44.50	-46.22	-44.10

The model parameters listed in Table 3.1 have been used to evaluate the various –order derivatives of the short-range interactions. A_i, Bi, Ci, Di (i=1, 2).Those parameters are the same as those defined by Verma and coworkers(4) except for the difference that we have included the effect of short range Vander Waals attraction and represented the overlap repulsion by the HF potential. With the knowledge of parameters and input data we have calculated the values of third, fourth order elastic constants using their relevant expressions reported (4, 5).

Results obtained in the table are in good agreement with the experimental results which shows that the agreement between experimental and our theoretical results are better.

REFERENCES:

1. K. Brugger, Phys.Rev.133, A1611 (1964)
2. P.B Ghate, Phys. Rev. 133 ,A1666(1965)
3. A.A Naranyan, Soviet Phys.-Solid State 5,129 (1963)
4. V.K Garg, D.S Puri and M.P Verma Phys. Stat. sol.(b)80,63 (1977)
5. V.K Garg, D.S Puri and M.P Verma Phys. Stat. sol. (b) 82,325,481 (1977).
6. R.K Singh and VVS Nirwal, P N Phys.Rev.133, A1611 (1964)
7. J.Shanker , J.P Singh and V.P Gupta, phys.stat sol.(b) 103, 573(1981)
8. S.Q Lundqvist , Ark.Mat.Astra .Fys.35A,30(1947)
9. R.K Singh and M.P Verma, Phys.Rev.36, 735 (1969); B2, 4288(1972)
10. A.V Karl son Phys.Rev.B2,3332(1970).
11. J.Jgalgele, M.Manke, R.K Singh and N.K Gaur ,Ind. j Phys 76A, 373 (2002)
12. N.K Gaur, N. Kaur, J Galgele, Preeti Singh, R.K Singh Mod. Phys. Lett 17,1391(2003)
13. J Galgele, N. Kaur ,Preeti Singh, N.K Gaur and, R.K Singh, 17,1391(2003)
14. D. Rawat, N.K Gaur & S. Singh Ultra Scientist, Vol.22(2),461-463(2010)
15. D. Rawat, N.K Gaur, Ultra Scientist, Vol.23(2),305-312(2011)
16. D. Rawat, Ultra Scientist, Vol.24(1)B,125-132(2012)
17. D. Rawat, International, Jour. of Fundamental &Applied Research, Vol.1, issue 4, July (2013) pp, (7-10).
18. D. Rawat, International, Jour. of Fundamental &Applied Research, Vol.2, issue 6, sept (2014) pp, (7-10).
19. D. Rawat, International, Jour. of Fundamental &Applied Research, Vol.3, issue 3&4,june&july (2015) pp,(1-4).
20. D. Rawat , International, Jour. of Fundamental &Applied Research,Vol.4, issue5, Aug(2016)pp,(12-14)
21. D.W Hafemeister and J.D Flygare, J. chem. Phys., 43,795(1965)

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International Journal of Fundamental & Applied Research
Website : www.ijfar.org ,(ISSN- 2320-7973 Volume-4 Issue -12 Month – March 2017 pp. (30 – 34)

Structural and Morphological Study of Mn doped ZnO Nanomaterial by Citrate gel method

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ABSTRACT
We have studied the structural and Morphological nature of Mn doped ZnO Nanomaterial using Citrate Gel Method. The structural, Morphological properties of Mn doped ZnO nanocrystalline particles, Zn1-xMnxO, with different percentages of Mn content have been studied. XRD measurements showed that all samples with Mn doping possess typical wurtzite structure and have no other impurity phases. Both XRD and SEM results indicated a slight variation in the grain size with increasing the Mn doping level. EDX shows the Mn percentage present in sample. An experimental results agrees with available other data.

INTRODUCTION

In spintronics the diluted magnetic semiconductors have recently attracted more attention since in these materials new functions can be added by transporting and controlling various types of spin states. In DMS materials, a non-magnetic semiconductor is doped with magnetic ions. These materials have resulted in the emergence of a new field of semiconductor spin-electronics involving the use of spin states inside semiconductor materials. Among these materials Mn doped II–VI and III–V semiconductors have been extensively studied [2, 3]. However, the Curie temperatures (Tc) of these materials have been limited to 140 K, which is far too low for practical device applications [1-4]. Due to this limitation these materials are considered unattractive for practical electronic applications. A theoretical prediction, by Dietl et al. [5], that hole–mediated Mn-doped ZnO and GaN can achieve Curie temperatures well above the room temperature initiated intense experimental work on a variety of doped diluted magnetic semiconductors. Subsequently, the values of Tc above room temperature were reported in Co-doped TiO_2 [6, 7], ZnO [8, 9] and Mn-doped GaN. ZnO, an II-VI compound semiconductor with a wide band gap of about 3.4 eV, is an attractive material for applications in optical devices such as blue-, violet-, and UV- light emitting diodes (LEDs) and laser diodes (LDs). ZnO is also a strong piezoelectric material. Thus, transition metal doped ZnO has the potential to be a highly multifunctional material with coexisting magnetic, semiconducting, electromechanical and optical properties. A number of workers have therefore investigated the ferromagnetic properties of Mn-doped ZnO in the last few years. The samples have been synthesized in the bulk and thin film forms and a wide range of magnetic properties including room temperature ferromagnetism have been reported [10-14]. For example, thin films of $Zn_{1-x}Mn_xO$ (x=0.1 and 0.3) grown on Al_2O_3 substrates by laser MBE are reported to show a Tc value in the 30-40 K range by Jung et al. [14], whereas the films of similar compositions have been reported to exhibit spin-glass behavior with a strong antiferromagnetic exchange coupling by Fukumura et al. [15]. Y. M. Kim et al. reported Tc ~ 39 K in $Zn_{0.8}Mn_{0.2}O$ films prepared by sol gel method [16]. Similar, widely varying results have been reported on bulk samples also. For example, Han et al. observed a ferrimagnetic phase transition in the case of $Zn_{0.95}Mn_{0.05}O$

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International Journal of Fundamental & Applied Research
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sample processed at 1170 K and it was attributed to the presence of the impurity spinel phase namely (Mn,Zn)Mn_2O_4 in the system [17]. Similar observation was obtained by J. H. Li et al. [18] in sol-gel derived $Zn_{1-x}Mn_xO$ samples sintered in nitrogen atmosphere at 900°C. P. Sharma et al. observed room temperature ferromagnetism in low temperature processed bulk and thin films of Mn-doped ZnO [10]. Recently, Chen et al. [19] have studied the effect of sintering temperature and atmosphere on the magnetic properties of Mn-doped ZnO. They observed ferromagnetic interaction in the samples sintered in Ar atmosphere below 700°C and found that ferromagnetic property disappeared when samples were sintered in air. From the above discussions it is clear that the ferromagnetism in Mn-doped ZnO is not well established. It also appears that processing parameters that affect the magnetic properties of the samples are not well optimized, particularly for the bulk samples. Also the variations of Tc and magnetization with concentration of Mn in the bulk samples have not been established very well. Under this scenario, the present investigation on the synthesis, structural and magnetic properties of bulk Mn-doped ZnO has been undertaken to explore the effect of processing parameters and concentrations of Mn ions in the samples on these properties. The samples in the bulk form were synthesized with the nominal compositions Zn1-xMnxO (x= 0.02, 0.05, 0.10, 0.15) by solid-state reaction and sol-gel methods. In both cases samples were sintered in air at ~ 700°C. The structural characterization of all the samples by XRD revealed the presence of wurtzite (hexagonal) crystal structure identical to the parent compound (ZnO).

2 EXPERIMENTAL

In the present investigation, Zinc Acetate and Manganese Acetate in stochiometric amount added with citric acid. In this solution Nitric acid in double amount is added. This solution is then heated in waterbath to get foamy precursor. This foamy precursor is then heated in furnace at 400^0C for two hours, so that we get black fluffy mass. This further sintered at 800^oC and we form the sample in pellete form. The samples were synthesized with the nominal compositions $Zn_{1-x}Mn_xO$ (x= 0.01, 0.03, 0.05, 0.10) by Citrate-gel methods. The samples were sintered in air at ~ 400^0C for 4 h in air and thereafter it was furnace cooled. After cooling the resulting material was reground. Finally the powder was sintered at 800°C in air for 18 h followed by furnace cooling.The crystal structure of the samples synthesized in the present work was studied by using X-ray diffractometer (XRD - BRUKER D8) employing Cu-Kα radiation. The surface and grain size were estimated by employing a Scanning Electron Microscope (SEM - LEO 435VP).

3 DATA ANALYSIS

The as grown samples with various compositions of Zn and Mn were subjected to X-ray diffraction studies for gross structural characterization. The typical X-ray diffraction patterns of the samples synthesized with nominal compositions Zn1-xMnxO (x= 0.01, 0.03, 0.05, 0.10) by the Citrate gel method are shown in figure 1.

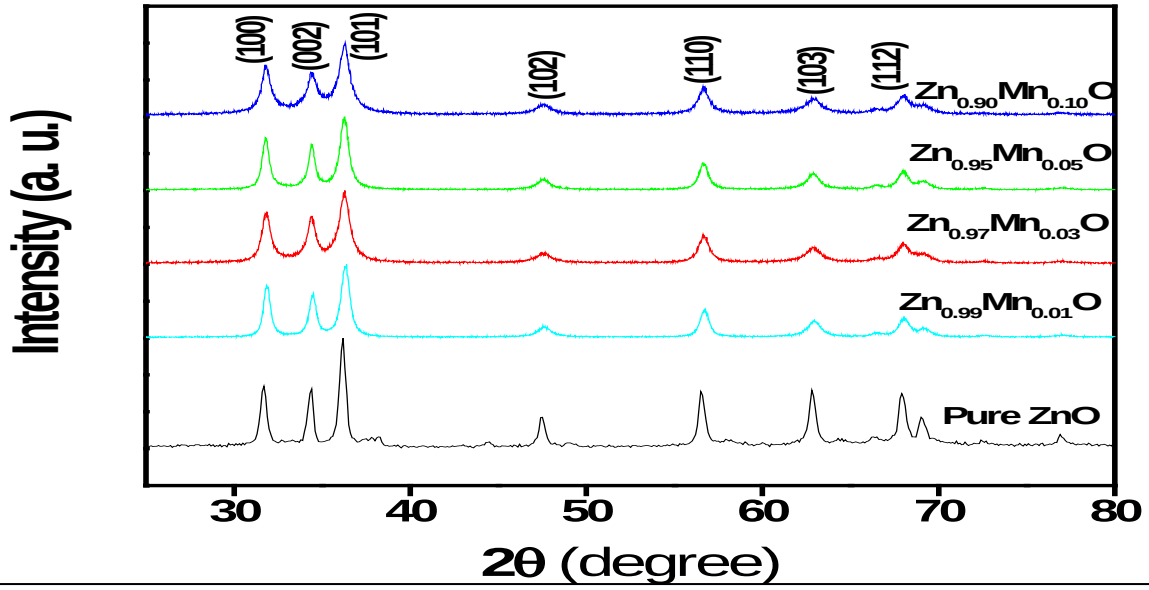

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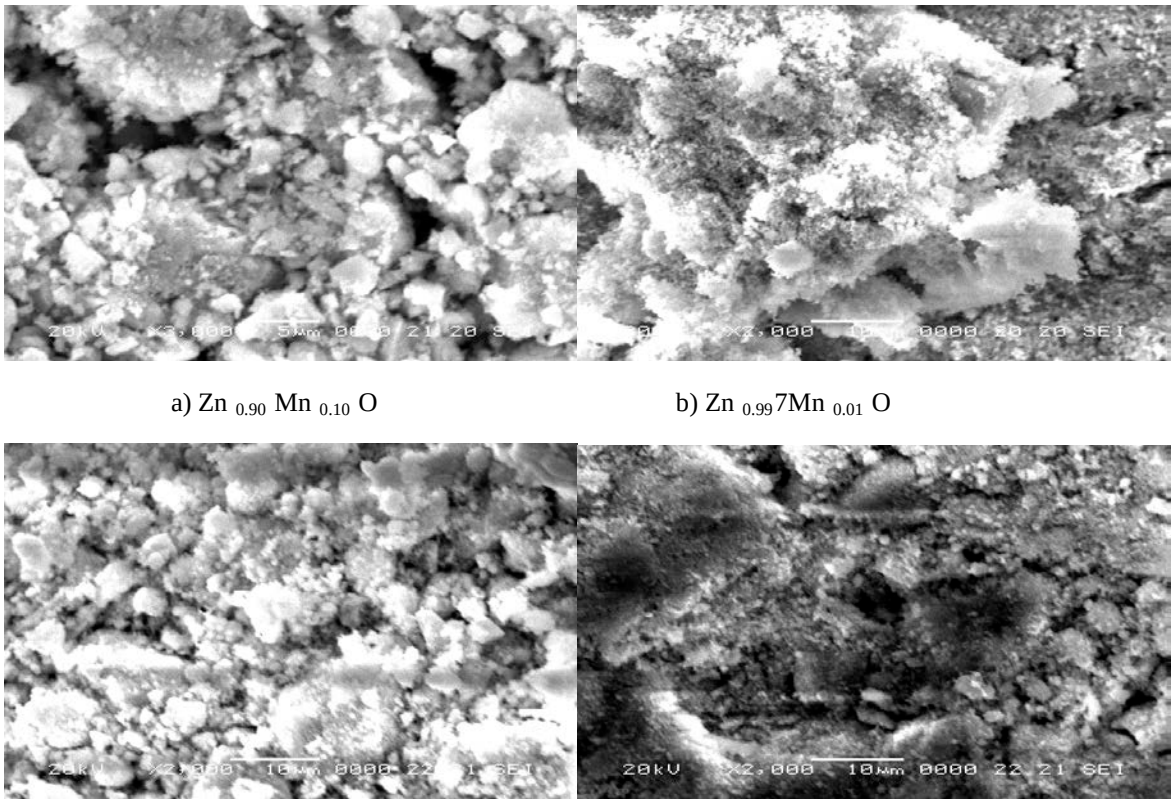
Figure 1. X-ray diffraction patterns of $Zn_{1-x}Mn_xO$, synthesized by the Citrate gel method.



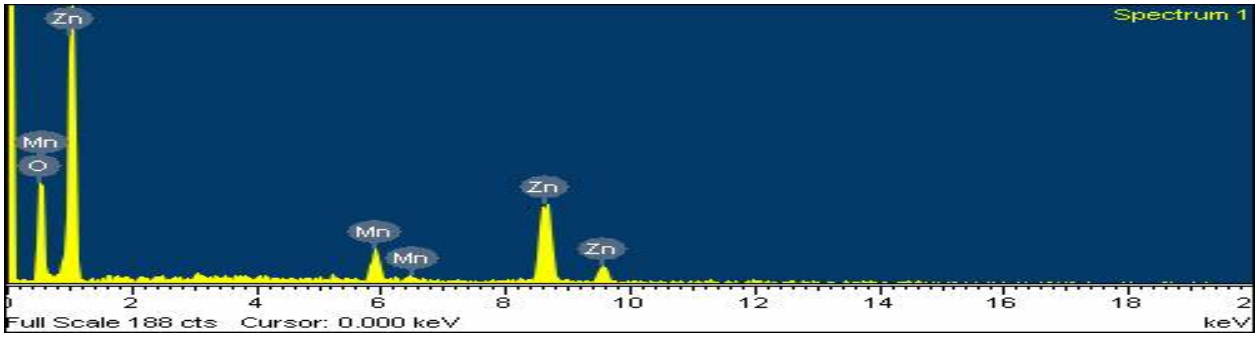
a) $Zn_{0.90}Mn_{0.10}O$ b) $Zn_{0.99}7Mn_{0.01}O$

c) $Zn_{0.97}Mn_{0.03}O$ d) $Zn_{0.95}Mn_{0.05}O$

Figure 2. Scanning Electron Micrographs of $Zn_{1-x}Mn_xO$ samples synthesized by Citrate gel method.

EDX Characterisation

Sample 1: - $Zn_{0.90}Mn_{0.10}O$



Sample 2: - $Zn_{0.99}Mn_{0.01}O$

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International Journal of Fundamental & Applied Research
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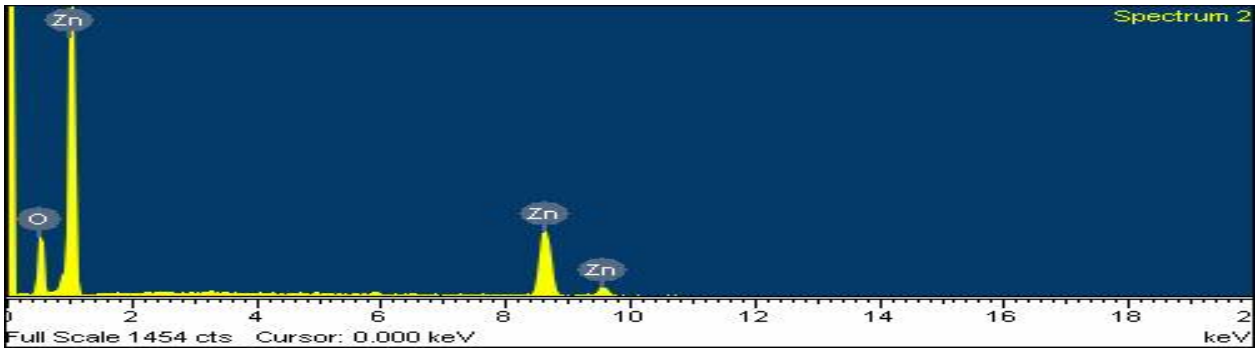
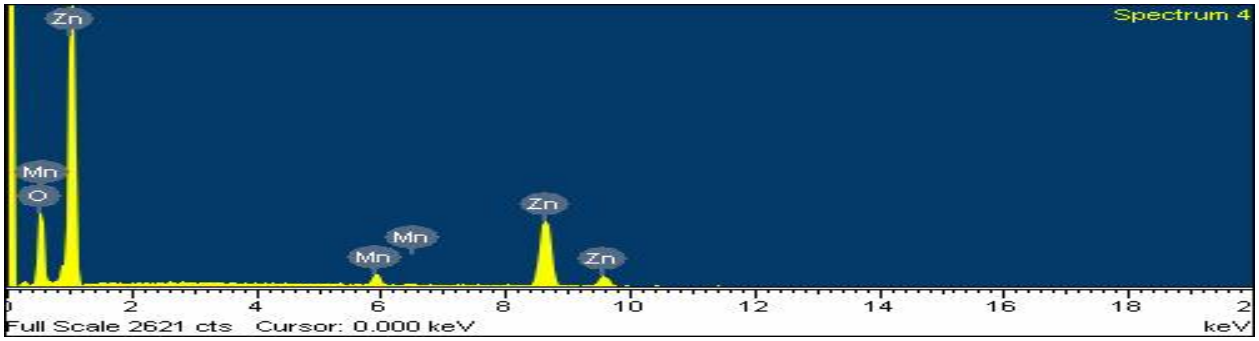
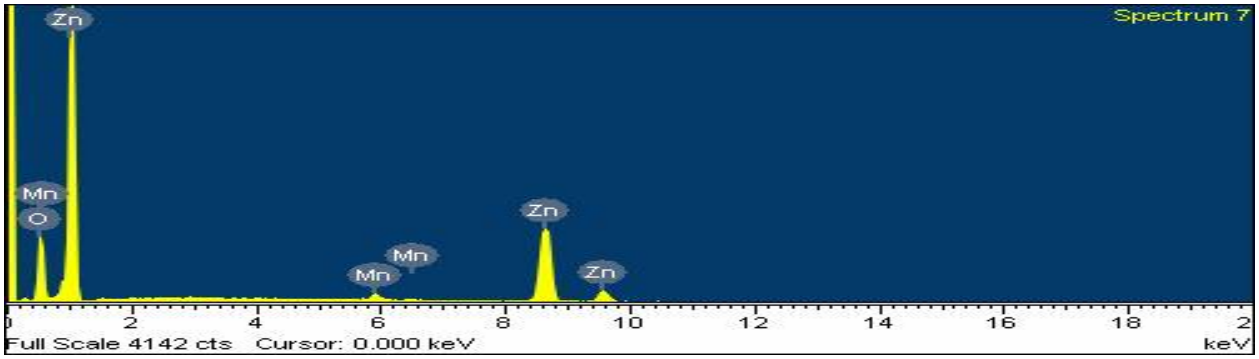


Sample 3: - $Zn_{0.95}Mn_{0.05}O$



Sample 4: - $Zn_{0.97}Mn_{0.03}O$



%Mn(Theoretical)	%Mn (EDX)	Crystallite size(nm)
1	0.91	9
3	2.95	15
5	5.74	30
10	8.59	11

4 CONCLUSION

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In the Citrate gel method Mn doped ZnO samples of nominal compositions Zn1-xMnxO (x=0.01, 0.03, 0.05, 0.10) synthesized by the citrate gel reaction, from the structural characteristics of the samples explored by XRD of pure and Mn doped ZnO system it is confirm that system having complete phase formation with Wrutzite (Hexagonal) crystal structure. Showing absence of Mn and Mn-O peak confirming substitution of Mn atoms on Zn site. All samples are prepared from citrate gel method. The Sherror formula gives rise to average particle size of all particles is of the order ~ 16 nm.

REFERENCES:

[1] S. A. Wolf, D. D. Awschalon, R. A. Buhrman, J. M. Daughton, S. von Molnar, M. L. Roukes, A. Y. Chtchelkanova, and D. M. Treger, Science 294, 1488 (2001).
[2] H. Ohno, Science 281, 951 (1998).
[3] J. K. Furdyana, J. Appl. Phys. 64, R29 (1988).
[4] H. Ohno, A. Shen, F. Matsukura, A. Oiwa, A. Endo, S. Katsumoto, and Y. Iye, Appl. Phys. Lett. 69, 363 (1996).
[5] T. Dietl, H. Ohno, F. Matsukura, J. Cibert, and D. Ferrand, Science 287, 1019 (2000).
[6] Y. Matsumoto, M. Murakani, T. Shono, T. Hasegawa, T. Fukumura, M. Kawasaki, P. Ahmet, J. Chikyow, S. Koshihara, and H. Koinuma, Science 291, 854 (2001).
[7] S. R. Shinde, S. B. Ogale, S. D. Sarma, J. R. Simpson, H. D. Drew, S. E. Lofland, C. Lanci, J. P. Buban, and N. D. Browning, Phys. Rev. B 67, 115211 (2003).
[8] J. H. Kim, H. Kim, D. Kim, Y. E. Ihm, and W. K. Choo, J. Appl. Phys. 92, 6066 (2002).
[9] A. Dinia, G. Schmerber, C. Meny, V. Pierron-Bohnes, and E. Beaurepaire, J. Appl. Phys. 97, 123908 (2005).
[10] P. Sharma, A. Gupta, K. V. Rao, F. J. Owens, R. Sharma, R. Ahuja, J. M. Osorio Gullen, B. Johansson, and G. A. Gehring, Nature Material 2, 673 (2003).
[11] D. C. Kundaliya, S. B. Ogale, S. E. Lofland, S. Dhar, C. J. Metting, S. R. Shinde, Z. Ma, B. Varughese, K. V. Ramanujachary, L. Salamanca-Riba, and T. Venkatesan, Nature Material 3, 673 (2004).
[12] T. Fukumura, Z. Jin, A. Ohtomo, H. Koinuma, and M. Kawasaki, Appl. Phys. Lett. 75, 3366 (1999).
[13] Sang-Wook Lim, Min-Chang Jeong, Moon-Ho Ham, Jpn. J. Appl. Phys. 43, L280 (2004).
[14] S. W. Jung, S.-J. An, G.-C. Yi, C. U. Jung, S. Lee, and S. Cho, Appl. Phys. Lett. 80, 4561 (2002).
[15] T. Fukumura, Z. Jin, M. Kawasaki, T. Shono, T. Hasegawa, S. Koshihara, and H. Koinuma, Appl. Phys. Lett. 78, 958 (2001).
[16] Y. M. Kim, M. Yoon, I.-W. Park, Y. J. Park, and J. H. Lyou, Solid State Commun. 129, 175 (2004).
[17] S.-J. Han, T.-H. Jang, Y. B. Kim, B.-G. Park, J.-H. Park, and Y. H. Jeong, Appl. Phys. Lett. 83, 920 (2003).
[18] J. H. Li, D. Z. Shen, J. Y. Zhang, D. X. Zhao, B. S. Li, Y. M. Lu, Y. C. Liu, and X. W. Fan, J. Magn. Magn. Mater. 302, 118 (2006)
[19] W. Chen, L. F. Zhao, Y. Q. Wang, J. H. Miao, S. Liu, Z. C. Xia, Appl. Phys. Lett. 87, 42507 (2005).
[20] S. Kolesnik and B. Dabrowski, J. Appl. Phys. 96, 5379 (2004).
[21] W. Chen, L. F. Zhao, Y. Q. Wang, J. H. Miao, S. Liu, Z. C. Xia, and S. L. Yuan, Solid State Commun. 134, 827 (2005).
[22] D. P. Joseph, G. S. Kumar, and C. Venkateswaran, Mat. Lett. 59, 2720 (2005).
[23] C. N. R. Rao and F. L. Deepak, J. Mater. Chem. 15, 573 (2005).
[24] D. J. Priour Jr., E. H. Hwang, and S. D. Sarma, Phys. Rev. Lett. 92, 117201 (2004).
[25] Y. Abdollahi1, A. H. Abdullah1,2, Z. Zainal1,2, N. A. Yusof2. Sciences IJBAS-IJENS Vol: 11 No: 04 63118104-7373 IJBAS-IJENS (2011)

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International Journal of Fundamental & Applied Research
Website : www.ijfar.org ,(ISSN- 2320-7973 Volume-4 Issue -12 Month – March 2017 pp. (35 – 36)

Article

वृद्धावस्था

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भोपाल (म.प्र.)

काल की गति अनवरत है।[1] यह इतनी शीघ्रता से चला जाता है कि उस पर किसी की दृष्टि नही जाती। एक नवजात शिशु कब अपनी शैशवास्था छोड़कर युवावस्था में पहुंचा और कब वृद्धावस्था में, यह पता ही नहीं चलता है। वृद्धावस्था से कोई बच नही सकता यह जीवन का सत्य है, लेकिन मनुष्य वृद्धावस्था की कल्पना मात्र से ही डर जाता है, निराश हो, जाता है, उपेक्षित हो जाता है, समाज से, परिवार से और यहां तक कि अपने आपसे। पदुमलाल पुन्नालाल बख्शी का कथन है, कि "इस अवस्था में लोगो के सभी भाव रस के रूप में परिणित होकर आनंदमय हो जाते है, युवावस्था में आडंबरप्रियता और प्रदर्शनप्रियता को देखा जा सकता है लेकिन वृद्धावस्था में यह सब नही रह जाते। वृद्धावस्था का सच्चा आनंद आत्मसंतोष है। जिस व्यक्ति को भविष्य की कोई चिंता नहीं रहती वे वृद्ध होते हैं, भारत के परिप्रेक्ष्य मे वृदधों की स्थिति दयनीय नही है यहाँ बड़ों का मान सम्मान किया जाता है। इसलिये कहा गया है, ''अभिवादन शीलस्य नित्यं वृद्धोपसेविनः/ चत्वारि तस्य वर्धन्त आर्युविधा यशो बलम अर्थात प्रतिदिन बुजुर्गों को प्रणाम करने और इनकी सेवा करने वाले व्यक्ति की आयु विधा कीर्ति और शक्ति की वृद्धि होगी लेकिन आजकल स्थितियां बदल रही हैं, मूल्य बदल रहे हैं दरअसल वृद्धों को बस स्नेह व सुरक्षा, अपनापन देने की आवश्यकता है। वृद्धों के मनोविज्ञान को समझना कोई कठिन कार्य नहीं है। वृद्धावस्था में जब मनुष्य पहुंच जाता है तो उसकी सोच में परिवर्तन आना स्वाभाविक है[2], जिन कार्यों को वह पहले आसानी से पूरा कर सकते थे। उन्हीं कार्यों को पूरा करने में कठिनाई का अनुभव होने लगता है। वृद्धावस्था में मनुष्य कब कदम रखेगा इसकी परिस्थितियाँ क्या है, इसकी कोई निश्चित लकीर नहीं है। चिकित्सा के क्षेत्र में वृद्धों के मनोविज्ञान (जेरिंटोलॉजी) का विकास हुआ, इसका विस्तार वस्तुतः तीन स्तरों पर होने लगा– जैविक, मानसिक एवं सामाजिक।'' आधुनिक मनोविज्ञान यह मानता है कि वृद्धावस्था का कोई एक कारण नहीं है, यह जीव प्रक्रिया का हिस्सा है। बाहरी बदलाव के साथ शरीर में भीतरी बदलाव भी होते हैं। रक्तचाप, मानसिक मंदता, श्रवण और दृष्टिशक्ति में क्षीणता–कुछ ऐसे लक्षण हैं जो वृद्धावस्था को प्रमाणित करते हैं। आधुनिक विज्ञान का मानना है कि जब तक मानसिक बल और संतुलन है, तब तक व्यक्ति वृद्धावस्था को नहीं पहुंचता है।

युवा पीढ़ी[3] को पुरानी पीढ़ी की बातें दकियानूसी लगती हैं, पीढ़ी अंतराल के कारण युवा पीढ़ी वृद्धों को घृणित दृष्टि से देखती है, उनका मजाक उड़ाती है तथा बात–बात पर उनकी अवहेलना करती है। पर यह बात तय है कि जिस समाज ने, परिवार ने अपने संस्कार छोड़े और वृद्धों का तिरस्कार किया, उसका भविष्य भी अंधकारमय ही रहेगा। सेवानिवृत्ति का प्रभाव अलग–अलग वर्ग के लोगों पर अलग–अलग प्रकार से पड़ता है।[4] एक अधिकारी यह सोचता है कि सेवानिवृत्ति के बाद उसका अस्तित्व ही मिट गया। एक मजदूर धनाभाव से चिन्तित हो उठता है क्योंकि उन्हें पूछने वाला भी कोई नहीं रहेगा। पति का सेवानिवृत्ति का समय करीब आने पर पत्नी भी चिंतित रहती है क्योंकि उसे अपनी गृहस्थी में आने वाले वित्तीय संकट की चिन्ता सालती है। सेवानिवृत्ति एक कठिन और जटिल समस्या है जिसमें व्यक्ति का मानसिक व शारीरिक क्षरण होता है तथा इसे रोकने के लिये निरंतर कार्यों में, उद्देश्यों में लगे रहना चाहिये तभी संतुलन बना रह सकता है। मनुष्य का

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Website : www.ijfar.org ,(ISSN- 2320-7973 Volume-4 Issue -12 Month – March 2017 pp. (35 – 36)

जीवन[5] तभी सार्थक है जब वह प्रेम और सौहार्द्र के माध्यम से अन्य के जीवन से जुड़े। शोषित वृद्धों के जीवन में सुधार लाना चाहिये न कि उनको वृद्धाश्रमों के हवाले करके उनको और कुण्ठित करना चाहिये। यदि वृद्धों को बेकार वस्तु के बजाय मनुष्य समझा जाये तो सब कुछ ठीक हो सकता है। वृद्धावस्था की तैयारी वृद्ध होने के बाद नहीं बल्कि युवावस्था से ही शुरू करने होगी। समाज का ढाँचा इस प्रकार बना हुआ है कि व्यक्तियों का ध्यान उस समय तक ही रखा जाता है जब तक वे किसी को लाभ देते हैं, इस सोच का फायदा युवा पीढ़ी उठा लेती है क्योंकि उनमें क्षमता और शक्ति होती है जबकि वृद्धों के पास उतनी क्षमता नहीं बची रहती है। उनके पास केवल आँखें होती है आँसू टपकाने के लिये। जब तक हमारे पास ऐसी नीति नही हैं जो इन वृद्धो के आँसु पोंछ सके, तब तक समय का यह चक्र वृद्धावावस्था की दुर्गति को रोक नहीं पायेगा।

निष्कर्ष

भूमंडलीकरण के दौर में संयुक्त परिवार बिखर कर एकल परिवार में बदल गये है। मनुष्य का वस्तुकरण हो रहा है, यहां पूंजी ही सब कुछ है। प्रायः यह भी देखा जाता है कि वृद्धों को अपने अधिकारों से भी वंचित किया जाता है जब वे विरोध करते हैं तो उनको अनसुना करके घर के कोने में रहने के लिये विवश किया जाता है। दरअसल वृद्धावस्था की बात हो तो केवल पुरूषों को ही ध्यान में रखा जाता है। स्त्रियों की बात तो होती ही नहीं है। स्त्रियों को बचपन से लेकर वृद्धावस्था तक बंदिशों में ही रखा जाता है। अतः वह वार्धक्य को भी आसानी से झेल लेती है। युवा पीढ़ी का अपने माता पिता को वृद्धाश्रम की शरण में छोड़ना क्या मानवीय व्यवहार है ? जिन माता पिता ने बच्चों को अंगुली पकड़कर कर चलना सिखाया, पग–पग पर कठिनाइयां उठाकर बड़ा किया, उनको वृद्धावस्था में ऐसे ठोकर खाने को मजबूर करना क्या न्यायसंगत है? वास्तव में वृद्धों को चाहिये अपनापन प्यार, देखभाल और इज्जत। अतः इन वरिष्ठ और अनुभवी नागरिकों को मान सम्मान दें तो यह युवा पीढ़ी के लिये वरदान सिद्ध होगें।

समीक्ष्य पुस्तक : वृद्धावस्था विमर्श, लेखक : चन्द्रमौलेश्वर प्रसाद, संपादक : ऋषभदेव शर्मा, प्रकाशक : परिलेख प्रकाशन, नजीबाबाद, संस्करण : 2016

गुर्रमकोड़ा नीरजा, सह–संपादक 'स्त्रवन्ति, प्राध्यापक, उच्च शिक्षा और शोध संस्था,
दक्षिण भारत, हिन्द्र प्रचार सभा, खैरताबाद, हैदराबाद–50004

समीक्ष्य पुस्तकः वृद्धावस्था विमर्श, लेखकः चंद्रमौलेश्वर प्रसाद, संपादक : ऋषभदेव शर्मा प्रचारक : नरिलेख प्रकार, नजीबाद, संस्करण : 2016

गुर्रमकोडा नीरजा, सह संपादक "स्त्रीवति", प्राध्यापक् उच्च शिक्षा और शोध, दक्षिण भारत हिंदी प्रचार सभा, खैरताबाद, हैदराबाद–50004

1. पुस्तक समीक्षा–डॉ. गुर्रमकोडा नीरजा
2. चंद्रमौलेश्वर प्रसाद वृद्धावस्था और जीवविज्ञान वृद्धावस्था विमर्श पृष्ठ–23–24
3. चंद्रमौलेश्वर प्रसाद, वृद्धावस्थाः मानव जाति विज्ञान, वृद्धावस्था विमर्श पृष्ठ–30
4. चंद्रमौलेश्वर प्रसाद, वृद्धावस्था : आधुनिक समाजों में वृद्धावस्था विमर्श पृष्ठ 52

चंद्रमौलेश्वर प्रसाद वृदधावस्था नीति की ओर वृद्धावस्था विमर्श–पृष्ठ–95

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लेख

इस्लाम कालीन भोपाल का संक्षिप्त इतिहास

अनिता भदौरिया
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सरदार दोस्त मोहम्मद खाँ को नवाबी भोपाल का संस्थापक कहा जाता है। सरदार दोस्त मोहम्मद खाँ अफगानिस्तान के तिराह नामक स्थान से था और ओरकाजी कबीले से ताल्लुक रखता था। उसकी पहली शादी इसी कबीले की मेहराज नामक लड़की से हुई थी। दोस्त मोहम्मद ने अपने चचेरे भाई का कत्ल कर, स्वयं को शत्रुओं से घिरा पाकर भारत का रूख किया और यू.पी. के जलालाबाद (सहारनपुर) के मनसबदार जलाल खाँ के यहाँ पनाह ली। उसकी जलाला खाँ के लड़के से अनबन हुई जिसकी वजह एक लड़की ही थी, दोस्त मोहम्मद ने उस लड़के का कत्ल किया और पनाहगार को धोखा देकर भाग निकला। जलालाबाद से दोस्त मोहम्मद करनाल आया और फजलुल्ला नामक सैन्य अधिकारी की सहायता से औरंगजेब की सेना में शामिल हो गया। श्री जयंत गौर द्वारा लिखित 'राग सूरमा भोपाली' के अनुसार दोस्त मोहम्मद ने अपनी तलवार के जौहर दिखाकर औरंगजेब का दिल जीत लिखा। बादशाह ने खुश होकर दोस्त मोहम्मद को मालवा क्षेत्र सम्भालने की जवाबदारी बख्श की। विदिशा और रायसेन के किले में सेंध लगाने की तैयारी कर रहे दोस्त मोहम्मद के दुर्भाग्य से सल्तनते हिंद के बादशाह जनाब औरंगजेब 20 फरवरी 1707 को अल्लाह के प्यारे हो गये। यह दोस्त मोहम्मद के लिये वज्रपात साबित हुआ। उसने हिम्मत न हारते हुये अपने वफादार सैनिकों का गिरोह बनाकर उनका सरदार बन बैठा और लूटमार का काम करते हुये वह छोटे–छोटे राजाओं की मदद कर पड़ौसी या उनके दुश्मनों से लड़ाई में सहायता कर लूट के माल में हिस्सा बाटने लगा। दोस्त मोहम्मद ने मालनपुर के राजा के पक्ष में लड़ाई लड़ी और उन्हीं के परिवार की हिन्दू लड़की से विवाह कर उसे फतह बीबी का नाम दे दिया। उसे दहेज में जो धन प्राप्त हुआ उससे बेरसिया जागीर 30 हजार रुपये सालाना किराये पर प्राप्त कर जगदीशपुर का किला जीत लिया और उसका नामकरण किया इस्लामनगर भोपाल ।

भोजपाल से भोपाल का प्रारंभ

भोपाल एक वीरान जंगली इलाका था। किसी को यहाँ कोई मोह नहीं था। निजाम हैदराबाद की नजर भोपाल पर गई और उन्होंने इस पर कब्जा कर, दोस्त मोहम्मद को यहाँ का किलेदार बना दिया। निजाम दोस्त के बेटे यार मोहम्मद को बंधक बनाकर अपने साथ हैदराबाद ले गया।

दोस्त मोहम्मद खाँ ने फतह बीबी के नाम पर फतेहगढ़ किले का निर्माण करवाया– जहाँ वर्तमान में गाँधी मेडिकल कालेज का भव्य भवन खड़ा हुआ है।

सन् 1728 में दोस्त मोहम्मद खाँ की मौत के बाद निजाम ने उसके पुत्र यार मोहम्मद को भोपाल का नवाब मनोनीत किया। इस प्रकार सरदार से नवाब बनने पर दोस्त मोहम्मद खाँ के अफगानी पठान की वंश परम्परा की भोपाल में नींव पड़ गई। दोस्त मोहम्मद खाँ तो जीवन भर सरदार के नाम से ही जाना गया किन्तु उसके पुत्र के नाम से नवाब का खिताब जुड़ गया जो दो शताब्दियों से अधिक समय तक फलता–फूलता रहा।

नवाब यार मोहम्मद की जल्दी ही मौत हो गई। उसके फैज और हयात नाम के दो बेटे और मामोला नाम (हिन्दू) उसकी पत्नी शेष बचे। फैज मोहम्मद संत स्वभाव के भले इन्सान साबित हुये, उन्होंने पेशवाओं से शांति संधि कर ली थी। इनके उत्तराधिकारी हयात खान हुये। ये कमजोर शासक साबित हुये। इनके दो साहबजादे थे– गौस खाँ और वजीर खाँ। गौस खाँ भी निहायत कमजोर शासक साबित हुये अंग्रेजों ने रियासत की कमजोर शाही कड़ियों की कीमत और औकात पहचानकर वजीर खाँ को भोपाल का नवाब

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International Journal of Fundamental & Applied Research
Website : www.ijfar.org ,(ISSN- 2320-7973 Volume-4 Issue -12 Month – March 2017 pp. (40 – 42)

घोषित कर दिया। वजीर खाँ ने तत्कालीन राजा दौलतराव सिंधिया से संघर्ष कर अपनी सल्तनत वापस ले ली थी। इनके भी दो पुत्र हुये– आमीर खाँ और नज़ीर खाँ। अंग्रेजों ने आमीर खाँ के बजाय छोटे भाई नज़ीर खाँ को भोपाल नवाब घोषित किया। इनकी भी जल्दी ही मौत हो गई। नवाब नज़ीर खाँ की मृत्यु के बाद उनकी मासूम बेटी सिकन्दरजहाँ को नवाब का वारिस और नजीर खाँ की बीबी कुदसिया बेगम को 'गार्जीयन रूलर' घोषित कर, भोपाल राज्य में बेगमों के साम्राज्य को सूर्योदय कर दिया।

सिकन्दरजहाँ की शादी, उनके चाचा आमिर खान के बेटे जहाँगीर से कर दी गई। जहाँगीर की जल्दी ही मृत्यु हो जाने पर उनकी पुत्री शाहजहान वारिस बनी और सिकन्दरजहाँ नवाब और 'गार्जियन रूलर' बनाई गई। शाहजहान बेगम की शादी बकी खान से हुई मगर वे 29 साल की उम्र में ही विधवा हो गईं। उनकी नन्हीं बेटी सुलतानजहाँ वारिस बनाई गईं और शाहजहान बेगम नवाब और 'गार्जियन रूलर' घोषित की गईं।

सुलतानजहाँ बेगम एक सफल प्रशासक साबित हुई। इनके तीन पुत्र हुये– (1) नसरूल्लाखाँ, (2) ओबेदुल्लाखाँ, (3) हमीदुल्लाखाँ। वर्तमान नसरूल्लागंज कस्बा नसरूल्लाखाँ के नाम पर तथा ओबेदुल्लागंज ओबेदुल्लाखाँ के नाम स्थापित कराये गये। दोनों कस्बे आज भी इसी नाम से जाने जाते हैं। ओबेदुल्लाखाँ हॉकी के बहुत अच्छे खिलाड़ी थे इस कारण उनके नाम पर भोपाल में ओबेदुल्लाखाँ गोल्ड कप हॉकी टूर्नामेंट आयोजित किया जाता रहा है। यह दोनों भाई न तो सुशिक्षित थे और ना ही ब्रिटिश कम्पनी सरकार की नजरों में काबिल थे। इसी कारण तीसरे और सबसे छोटे बेटे हमीदुल्लाखाँ को अंग्रेजों ने नवाब भोपाल बनाना स्वीकार किया। नवाब भोपाल हमीदुल्लाखाँ के नाम पर वर्तमान में हमीदिया हास्पिटल और हमीदिया कालेज संचालित हैं। सुलतानिया अस्पताल सुलतानजहाँ बेगम के नाम पर है। इसी तरह बिलकीसगंज, गौरहगंज, गौरह महल, बिरजीसनगर आदि भोपाल नवाब परिवार के सदस्यों के नाम पर स्थापित हैं। हमीदिया कालेज नवाब भोपाल हमीदुल्ला खान ने ही स्थापित कराया था। जहांगीरिया स्कूल, रसीदिया स्कूल, सईदिया स्कूल, सुलतानिया गर्ल्स स्कूल, शाहजहाँनाबाद, जहाँगीराबाद मोहल्ले आदि नवाब भोपाल की वंश परम्परा के आधार पर ही नामांकित हैं।

नवाब हमीदुल्लाखाँ अलीगढ़ विश्वविद्यालय से सुशिक्षित और अंग्रेजी वातावरण में पले–बढ़े शश्सियत थे। इसी कारण उन्हें 'चेम्बर ऑफ प्रिंसेस' का चेअरमेन बनाया गया था। उनकी तीन बेटियां थी– आबिदा, साजिदा और राबिया।

आबिदा बेगम की शादी नवाब कुरवाई (विदिशा के निकट एक छोटी सी रियासत) से सम्पन्न हुई, किंतु आबिदा बेगम पति को छोड़कर पाकिस्तान चली गईं। आबिदा बेगम का बेटा शहरयार खान पाकिस्तान के विदेश सचिव बने, उनकी शादी कुरवाई की ही वारिस केसरजमां बेगम की बेटी से हुई। केसरजमां कुरवाई नवाब की दूसरी शादी से पैदा हुई थी। इन्हीं केसरजमां बेगम ने भोपाल में ऑल सेन्ट्स स्कूल और कालेज स्थापित किया है। दूसरी बेटी (नवाब हमीदुल्लाखां की बेटी) साजिदा की शादी नवाब पटौदी (सीनियर) से हुई। इनकी तीन सन्तान हुई– पटौदी जूनियर, सालेहा सुलतान और साबिहा सुलतान। नवाब पटौदी (जूनियर) की शादी शर्मिला टैगोर से हुई। इनकी भी तीन संतान हुई– सैफ अली खान, सोहा अली खान और साबा अली खान। सैफ अली खान ने फिल्म स्टार करीना कपूर से (दूसरी) शादी की। सफै अली खान ने पहली शादी अमृता सिंह नामक एक्ट्रेस से की थी जिससे तलाक के लम्बे समय बाद करीना कपूर से निकाह किया। इस प्रकार नवाब भोपाल के खानदान का वंश वृक्ष पूर्ण हुआ।

15 अगस्त 1947 को भारत आजाद हो गया। नवाब हमीदुल्ला खाँ रियासत के मुखिया बने रहे। स्वाधीन भारत के गृह मंत्री वल्लभ भाई पटेल की पहल पर नवाब ने स्वतंत्र भोपाल स्टेट के स्वप्न को तिलांजलि दी और भोपाल स्टेट का अन्य रजवाड़ों, विशेषकर हैदराबाद के ही समान, भारत में विलय हो गया। 1 मई 1949 को भारत में विलय के बाद, भोपाल रियासत के राजस्व और आकार के आधार पर इसे पार्ट–सी स्टेट का दर्जा दिया गया। उस समय भोपाल की पूर्व रियासत में तीन ही जिले थे– सीहोर, रायसेन और हुजूर यानि भोपाल। भारत सरकार द्वारा यहाँ की प्रशासन व्यवस्था के लिये एक कमिश्नर की नियुक्ति कर दी गई जो आई.सी.एस. अधिकारी थे।सन् 1952 में आम चुनाव हुये। चुनाव में कांग्रेस विजयी रही। यहाँ तीन सदस्यीय मंत्रिमण्डल का गठन हुआ। डा. शंकर दयाल शर्मा मुख्यमंत्री बनाये गये। बाबू कामता प्रसाद वित मंत्री बने और तरजी शर्मिकी डिप्टी मिनिस्टर बनाये गये।

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Website : www.ijfar.org ,(ISSN- 2320-7973 Volume-4 Issue -12 Month – March 2017 pp. (40 – 42)

1 नवम्बर 1956 को एकीकृत मध्यप्रदेश का गठन कर, भोपाल को प्रदेश की राजधानी और पंडित रविशंकर शुक्ला को नवनिर्मित मध्यप्रदेश का प्रथम मुख्यमंत्री मनोनीत किया गया। इस प्रकार लोकतंत्र की स्थापना के साथ ही इस्लामिक भोपाल का इतिहास समाप्त होता है ।

संदर्भ सूची

- इम्पीरियल गज़ट ऑफ इंडिया 1908
- डा राधेशरन –प्राचीन भारत का इतिहास
- वी डी महाजन ––प्राचीन भारत का इतिहास
- एच. इलियट –हिस्ट्री ऑफ इण्डिया, वाल्यूम 111 के पृष्ठ 58–60
- अशफाक अली –भोपाल पास्ट एण्ड प्रजेन्ट
- श्री जयंत गौर – राग सूरमा भोपालीमुहम्मद मैहर अली – 'तारीखे भोपाल

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