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Economic importance of Aquatic Angiosperms of the Kosi region

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Abstract

Some of the Aquatic Angiosperms such as Origa saliva, Euryale Ferrox (Makhana), Trapa Bispinosa (Singhara), Nelumbo nucifera (Kamal), Centella Ascatica (Brahmi buti) etc. are of great economic importance. These are some well-known aquatic Angiosperms of kosi region.

Key words: - Kosi Region, Centella Ascatica.

Introduction

Aquatic Angiosperms in the river kosi region are of great economic values. These are more productive than the traditional crops. No any tillage or extra chemical fertilizers are needed for its cultivation. No chemical harm for lands appears in these crops. Farmers are earning more in less investment. Some utmost care is required during cultivation of aquatic plants due to high water content. Because high water logging spoils these plants in short period. Due to lack of government support very a smaller number of farmers even after it has huge potential grow these crops. But more and more farmers in the countries like, China, Japan, Indonesia, Thailand, Malaysia etc. are working on earning more from aquatic and semi aquatic plants. In this research work more uses and economic values are being presented so that more and more farmers can work for cultivation of aquatic Angio spermic crops and may earn more than the traditional crops.

Methodology

The present research is based on the several critical and intensive study of valuable aquatic Angio spermic crops especially of Araria and Purnea district of Bihar during the season of vegetative, flowering, fruiting and cultivating stages. The specimen of these crops during every survey were collected and data were recorded in the field notebook. The data recorded field number, habit, habitat, locality, ecological notes as well as the colours in every

stage were noted carefully. An attempt was made to identify the plants before pressing in the herbarium pressure. The collected specimens were immediately pressed in herbarium press & old magazines. Flowers and fruits were also fixed in preservatives for the critical studies. The dried specimens were poisoned the solution of Mercuric Chloride and Cresol in the rectified spirit. These were all done on the very same day of the field work. Various usage of the plants was taken from the people of the locality. Some information also collected from the local market and vendors of these aquatic and semi aquatic Angio spermic crops.

Results

Some of the aquatic and semi aquatic Angio spermic crops are used traditionally from a long period. Some of them are used as food by poor during scarcity of food during rainy and post rainy season. Some of them are being discussed further: -

1. Oryza Sativa

It is the most common cereal of the world known as paddy. It is mainly cultivated in rainy season. But these days it may be cultivated in other seasons too in smaller scale. During other seasons its cultivation is costly than during rainy season in both high and low lands. This aquatic Angio spermic plants provides main common foods like: - rice all over the world. More than half of the population of the world uses it as main food. Its economic value is known to all over the world.

2. Euryale Ferrox: -

Commonly known as "Makhana". It is the precious aquatic Angio spermic crop. This crop is easy to grow by cultivators but very tough for workers who get flakes from these seeds. It is pure aquatic Angio spermic crop. Farmers having ponds, ditches, chorus, etc. Lowlands and well known to it use to cultivate this precious crop. It is a dense rhizomatous aquatic herb. Leaves shooting orbicular with prickles on nerve, above green and deep purple below. Flower are of deep red or violet, submerged. Sepals 4, inserted on the edge of the torus. Petals indefinite in more than two whorls. Stamens 8, filament linear, innermost sterile. Carpels 8, stigma concave, discoid, depressed. Fruits spongy and prickly. Seeds black, 8-20, pulpy aril. During rainy seasons (June-September) it is cultivated and get ready for marketing. Each member of a family is involved to remove flakes of makhana from its seeds. Male members of the family use to buy Makhana seeds from farmers, wash them in rivers, ponds, canals, put it at wet places. They dry them in adequate scale so that it may get fried,

take out flakes by beating fried seeds, process it through tough conditions. Conditions of these workers is poor; they need government help. Its economic value is very high, rich people use it as healthy diet. It is very costly in market.

3. Trapa Bispinosa

Trapa Bispinosa is commonly known as Singhara Paniphal. Its shape is just like common breakfast singhara or samosa in this area. It is an aquatic floating annual herb with ascending stems, mostly simple, flexible, submerged bottom rooted. Leaves opposite below, alternative above, dimorphic, submerged leaves, sessile, linear, entire. Floating leaves in terminal Rosettes, the blades rhombic with toothed margin and broadly cuneate to truncate bases, the pelide often an ellipsoidal and spongy swelling. Flowers are bisexual, radially symmetrical, solitary, shortly pedicelled, sepals 4, triangular, united to the ovary, persistent. Petals 4, white or liliae caducous. Stamens 4. Ovary half inferior. Fruit a large woody or bony, spinose nut, mostly with two large and too small spines, the spines with or with barbed tips. This aquatic angiosperm is cultivated commonly in ponds, tanks, ditches and water-logged area of Araria, Purnea district and all over kosi and Purnea Division. It is cultivated in rainy season during the months June- November. Its flowering to fruiting period is from August to November. It is available in market from September to November. Dry Singhara or Paniphal is also very useful. Its flour is highly nutritious. It is a natural source of minerals such as starch, manganese, iron, phosphorus, calcium etc. Its flour is used mix with wheat flour to prepare healthy Chapati. Its flour is also used in preparing healthy and tasty "halwa". Mostly people take in a raw and wet condition. It also used after boiling. Lastly its economic value is very high. It is precious.

4. Nelumbo nucifera

Nelumbo nucifera is commonly known as l Lotus or Kamal. It bears white or pinkish red beautiful flowers of 50-20 cm in diameter. Flowers are scented, peduncles with weak prickles. Its flowers are used to worship by Hindus. It bears stamens numerous, anthers with club shaped appendages at the top and carpels numerous, free oblong and sunken the large spongy torus. It is an aquatic perennial herb with milky juice and long creepy underwater rhizome. Its leaves are orbicular of 30-50cm diameter centrally peltate waxy, marginally upturned, raised above water. Its fruit and Its fruit are an aggregate of indehiscent, single seeded nutlets. Seeds with spongy seeds coats. The different parts of lotus e.g. roots, flowers, stem, young fruits and seeds are used as food in different way. Nelumbo honey is highly demanded In the market. It is used as vegetable alone or with other with combination. It is

very nutritious. It is cultivated as Aquatic crops in ponds, tanks, lakes etc. Its flowering and fruiting stages are in the month of April-October.

5. Centella Asiatica

Centella Asiatica is commonly known as "BrahmiBuli". It is a perennial, floating or terrestrial herb with creeping stems, stolen like leaves in Rosettes, 1-6 clustered on short shoots at each node, distinctly petiolate blades simple reniform to orbicular, margins entire or crenate or crenate- dentate. Its flowers usually 3, the middle one usually sessile, petals white to red, involucral brackets, 2 fruit avoid to ellipsoid, flattened, 2-3mm long, 3-4mm broad and brown in colour. It naturally grows in moist and shady places along irrigation channels.
It is used as medicine. A well-known for brain to improve memory. It is commonly used in Ayurvedic medicine. It is used for skin, blood related disease. Its leaves juice is used to cure problems related to stomach, diarrhoea, dysentery etc.

Conclusion

Above discussions show the great economic value of several aquatic Angio spermic plants. Only Oriza sativa is known to general farmers. Rest of all other than discussed above aquatic plants needs thorough investigation and exploring cultivation. These requires modern production technology to raise their productivity and economic value of this kosi region. Government support is necessary for this. These are of great national economic importance too as these crops of early cultivate in Less efforts and without using extra fertilizer.

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