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AQUATIC WEED AND THEIR MANAGEMENT IN POND OF HAJIPUR DISTRICT AND ITS IMPACT ON AQUATIC FLORA

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ABSTRACT—

Aquatic weeds are useful when their population are within the limit. They are harmful for fish and fisheries when it crosses the limit. In that condition management is necessary. Different aspects of emergent. Floating and submerged weeds from the point of view of fisheries are described. Aquatic Weed Management is a particularly complex problem in



multiple-use waters, which mackup an increasingly large proportion of water bodies. Effective and environmentally acceptable management of aquatic vegetation must overcome difficulties of access to the target weed, take into account the ecological complexity and vulnerability of fresh water ecosystem and avoid interference with the different uses of the

target water, as well as coping with a potentially wide spectrum of weed species.

INTRODUCTION

Weeds are plants which grow out of their place, interferer with the utilization of natural resources, prolific, persistent, resistant, competitive harmful and even poisonous in nature and can grow under adverse climatic conditions. Aquatic weeds are those unabated plants which grow and complete their life cycle in water and cause harm to aquatic environment directly and to related eco-environment relatively. Water is one of most important natural resource and in fact basis of all life forms on this planet. Therefore appropriate management of water from source to its utilization is necessary to sustain the normal function of life. It is one important part of natural resource management. The presence of excessive aquatic vegetation influences the management of water in natural ways, man made canals and reservoirs which amounts to million of kilometres. The area under small tanks and ponds is equally important due to the establishment of many small irrigation schemes and watershed management projects all over the world. For example India has 1.9m ha under water in reservoirs and 1.2m ha under irrigation canals. The area under village pond and tanks is nearly 2.2m ha.

Aquatic weeds after reduce the effectiveness of water bodies for fish production. They are harmful for fish and fisheries when it crosses the limit. In that condition management is necessary. Different aspects of emergent, floating and submerged weeds from the point of view of isheries are described here with example of research status on that aspect in India.

On the other side when aquatic plants become over abundant it require control water is one of most important natural resource and infact basis of all life forms on this planet. Therefore appropriate O2 management of water form source to its utilization is necessary to sustain the normal function of life. It is an important part of the natural resource management. The presence of excessive aquatic vegetation influences the management of water in naturals waterways, manmade canals and reservoirs which amount to millions of kilometers of such water bodies. They pore serious threat to fish and fisheries. Fish worth millions of rupees are lost every year at the hand of weed menace. Considering the losses caused by aquatic weeds, their management is of almost important to improve the availability of water from the source to its end users. This does not only improve availability but also the conveyance efficiency. Growth of aquatic weeds interferes with the storage and delivery systems of irrigation water maintenance of canals, drains, barrages lake, ponds etc. There systems often get choked with the weeds and cause environmental pollution on low lying areas, adjoining irrigation and drainage channels, social salinity and alkalinity problem do arise.

DIFFERENT TYPES OF AQUATIC WEEDS :-

Proper identification of aquatic weeds is of primary importance for their control. They are classified according to various habitats which form their eco environment and become conducive for their growth reproduction and dissemination.

(i) Algae and

(ii) Flowering plants

Aquatic flowering weeds are broadly divided into three groups.

(a) Emergent Weeds :- Shore & marginal

(b) Floating Weeds :- Free floating, rooted floating

(c) Submerged Weeds :- Rooted and non-rooted.

(i) Algae :- Microscopic algae are planktonic and their rapid proliferation results into algal booms, in which they form seems and or color the water green or yellow-green.



Fig 1. Filamentous algae

Blooms usually occur where abundant nutrients are reaching the water. They should be treated with chemicals before they cause a noticeable colour but a sudden die-off of these algae can cause fish kills. Filamentous algae als known as Moss form floating mat-like growths which usually begin around the edges and bottom of ponds in the early spring.



Fig 2. Chara

- (i) Flowering Plants :- Flowering plants can be grouped into three broad categories according to where they are found in a body of water.
- (a) Emerged Weed :- These weeds grow in shallow water and situation existing near the water bodies where water recedes and rises with the season or regular releases from a large water body. Most of such situation is of permanent in nature where maximum and minimum water levels are consistent. These weeds may be called semi-aquatic. They grow on the margins or on the shore line of the water body are also called marginal weeds.

Examples of the emergent weeds:

Sr.No.	Botanical Name	Common Name	Family
a.	<i>Typha latifolia</i>	Cattail common	Typhaceae
b.	<i>Hydrocotyle Umbrella</i>	Water pennywort	Hydrocolylaceae

- (b) Floating Weeds : These plants which grow and complete their life cycle in water. These weeds are observed in the surface of the large, deep and shallow depth of water bodies. Some of the weeds in this ecosystem freely float and move long distances.

These weeds can be classified into two sub groups (i) Free floating and (ii) Rooted floating weed

Example of floating weeds :-

Sr.No.	Botanical Name	Common Name	Family
a.	<i>S. Molesta</i>	Water fern	Satviniaceae
b.	<i>Nelumba nucifera</i>	Lotus	

- (c) Submerged Weeds :- Weeds species belonging to this group germinate, grow and reproduce beneath the water surface. Their roots and reproductive organ remain in the soil at the bottom of the water body. Submerged weeds may be further categorized as (a) Rooted and (b) Non rooted or floating – submerged example of submerged weed :- Hydrilla, Najas etc.

Effects of aquatic weeds on ecosystems :-

- Aquatic weeds create situation which are ideal for mosquito growth.
- Aquatic weeds also affect quality of water.
- Increase the organic matter content of water
- Hindrance for water flow

- e) Water clogging.
- f) There are water wasters.
- g) Pore pollution and health problem
- h) Hinder navigation
- i) Increase nsedimentations
- j) Reduce the aesthetic value
- k) Effect on fish production.

Management of Aquatic Weeds :-

Considering the losses caused by aquatic weed, their management is of utmost importance to improve the availability of water from the source to its users. This does not only improve availability but also the conveyance efficiency. Irrigation and drainage systems provide favourable conditions for the growth of aquatic weeds which interfere with the storage and delivery systems of irrigation water maintenance of canals etc. These system often get choked with the weeds and cause environmental pollution.

Management of aquatic weeds consists of two approaches viz; preventive and control of existing infestation :-

- (i) Preventive approaches
- (ii) Control of existing infestation

The habit and the type of aquatic weed flora influence the technique of weed control. In broader sense weed 'control' means keeping the weeds at a level where they do not cause economic damage. Aquatic weed can be brought under control to manageable limits by various methods. Broadly, there method can be groped under four groups :-

- (i) Physical or Mechanical methods.
- (ii) Cultural and physiological methods.
- (iii) Biological methods.
- (iv) Chemical methods.

Economic importance of Aquatic Weeds :

- a) Aquatic weeds as compost, soil conditioners and green marure.
- b) Weeds as feed for Animal, bird or fish.
- c) Aquatic weeds as food crops.
- d) Aquatic weeds as a source of energy.
- e) Waste water treatment.
- f) For pulp paper and fibre
- g) For Mushroom Cultivation
- h) Production of methane gas.
- i) Fish poisons

Rough and tough marginal weeds can be used for making nuts, thatching roofs, fishing rods etc. Water hyacinth is very helpful in reclaiming alkaline soils.

CONCLUSION

- (a) Nutrients of pond water favoured biomass production Eichhcrhia Crassipes, Potamogeton Crispus, Potamogeton pectinatus and ceratophyllum demersum. Production of Najas graminea and Hydrilla verticillata were decreased.
- (b) Aquatic macrophytes showed better nutrient concentration in nutrient enriched water of the pond.

- (c) *E. Crassipes*, *P. Crispus*, *P. pectinatus* and *C. demersum* may therefore be used for chemical eutrophication abatement in nutrient enriched sewage affected pond water.

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