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Upendra *Beel* flora conservation and hydroponics

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Abstract

Aquatic flora may primarily mandatory for natural inland fisheries. In this present communication a few aquatic flora are enlisted herewith for their major role other than fisheries as well. Aquatic flora are easy growing plants and can also be studied ideally as hydroponics. These plants may benefit fisheries along supplementary nutrition for human, poultry and cattle. Aquatic plant database of economic importance are mentioned for natural preservation. Such may be the need of the day to support their culture through hydroponics.

Keywords: Aquatic flora, Hydroponics, Upendra Beel

1. Introduction

Unlike terrestrial plants most aquatic flora can be grown in a simple way. Growing may be mostly in a natural way or through cultural means when such resource is becoming diminished. One of the such cultural means is hydroponics. The growing plants in water culture is termed as *Hydroponics* (Fig 1 to Fig. 3). Importance of this *hydroponics* is more, if such plants are food plants. This terminology viz. hydroponics is very old, however, our thought is in a new way to communicate. This is for whom who loves the plants and quality plant foods obtained through waters medium. When soil culture become difficult, this process to grow these classical plants in water medium is encouraging for the vegetarian people. Brahmi (*Bacopa monnieri* Lin.) and Kulekhara (*Asteracantha longifolia* Nees.) are aquatic flora can be used as vegetable successfully grown as hydroponics culture in tropical climate. Since this are having food value *Brahmi* and *Kulekhara* are easily culturable in water even without soil. Growth is promising once least soluble nutrient medium is provided. Experiment is conducted in different conditions to grow Brahmi. It is found that mere water medium in pot may be the best. It can be harvested in less than a month. Recent study finds that hydroponics is successful in other than aquatic flora as well like lettuce. Lettuce (*Lactuca sativa*) experimented (Lopes *et.al*, 2004) ^[4] and culturing Blueberry plant performed in Japan. Two plants are the gift of the nature and have growth in water medium. Least cultural activity, for the both the plants, are required. Within a shortly plant apical cutting may be harvested. These leafy vegetables are ideal source of some valuable plant syntheses and useful since the Vedic era.

2. Materials and Method

Database (Table 1) is created based on sampling. Plant spacing for micro flora (0-2cm apart) may be applied. Usually sixteen micro and macro elements are required for the growth of most terrestrial plants. *Hydroponics* is not for the high laborious people, since they may break the pots while work applied and may destroy the synthesis processes. Since *Hydroponics* is mostly plant culture, the day time and sun intensity is crucial. The author has experimented in tropical climate of West Bengal condition on some locally available the Vedic and food plants mentioned (Chakraborty, 2007) ^[3], often the process may become successful.

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Table 1: Database of aquatic flora for Hydroponics

| | |
|--------------------------------|----------------|
| <i>Anabaena</i> spp | Bio-fertilizer |
| <i>Asteracantha longifolia</i> | Vegetable |
| <i>Bacopa monnieri</i> | Vegetable |
| <i>Euryale ferox</i> Salisb. | Foxnut/Makhna |
| <i>Herpestis monniera</i> | Vegetable |
| <i>Hydrocotyle asiatica</i> L. | Vegetable |
| <i>Hygrophila spinosa</i> T. | Vegetable |
| <i>Ipomoea bonanox</i> L. | Moon flower |
| <i>Ipomoea hederacea</i> | Indian jalap |
| <i>Ipomoea reptans</i> | Waterbind weed |
| <i>Isoetes</i> spp | Algae/Isoetes |
| <i>Lemna minor</i> | Duckweed |
| <i>Nelumbium speciosum</i> | Lotus |
| <i>Nelumbo montana</i> | Lotus |
| <i>Nostoc</i> spp | Bio-fertilizer |

Hydroponics positively the encouraging to utilize water, solar energy and carbon-dioxide and others which are free in the atmosphere and nature. The only requirement of simplest *Hydroponics* is an earthen pot, that should not be perforated. These two plants have significant growth in water medium. Least cultural activity, for the both the plants, are required. Growth observation is time passing hobby for plant lovers. Once high multiplications are required around (.0001%) solution of Ammonical nitrogenous fertilizers may be added, others nutrient are obtained from burned mud pot's surface. *Hydroponics* is not for the high laborious people, since they may break the pots while work is applied and may destroy the plant synthesis processes. Since *Hydroponics* is mostly plant culture, the day time and sun intensity is crucial. The author has experimented in tropical climate of West Bengal condition, very often with these plants.

3. Results and Discussion

The only requirement of simplest *Hydroponics* is an earthen pot, that should not be perforated. Sometime plankton spore usually comes from the air medium to hydroponics medium, their growth is encouraged when transparent pot is used. Plankton growth is restricted if we use non transparent pot. Flowerings in hydroponics culture is recently performed (Farzad *et. al*, 2009) ^[1] in Rose flowering and (Lee and Sue, 2005) on Tulip flower respectively. However they may be unaware about the bio-chemical compositions and nature of two such flowerings bio-molecules behind the two distinct sexes. Brahmi is a bisexual plant and for obtaining each sex there is distinct bio-molecule responsible, Brahmi stem is propagated by cutting and kept on water media under synthetic containers. No nitrogenous or phosphorus elements are added in the media. Plant of 30 stem cuttings produce flowers. Old stem and extreme young cuttings do not produce flowers. Young stem when attains certain maturity, say 3-4 months, may produce flowers during the warm days when temperature become moderate to high (18-37 °C)

**Fig 1:** *Bacopa monnieri* (Ayurvedic vegetable)**Fig 2:** *Ipomoea aquatic* (Vegetable)



Fig 3: Duckweed (Cattle, fowl and fish feed)

4. Conclusion

The study area is *Upendra Beel* a dead water-body located at Nadia district of West Bengal. During the period of monsoon growing conventional crops may become uneconomic due to occasional flood. Fisheries along with this aquatic resource conservation may become possible for sustainability. These aquatic flora can be used as a resource base of hydroponics saplings for academic and research interests.

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