Summary

- The total global annual edible fish trade is estimated as US $ 86 billion and the ornamental fish trade contributed up to US$ 7.5 billion.

- The “Live art” - fancy fish keeping perceived globally and in China such a fish keeping is believed to fetch fortune to their home. The watching of colour fishes passify the tension, thus form as a good remedy for heart ailments.

- Ornamental fish culture generates constantly increasing demand in the global market. Whereas Indian export is very minimal – despite of long coastal belt and inland water sources with more than 500 indigenous species of capture origin. Domestication and mass production are essential to meet the expected demand.

- Induced breeding, an effective method used for mass production in shorter duration, which enabled the time specified supply of fancy fishes.

- High cost of ovulation -inducing medicines, problem of storage and low rate of success were sabotaging the development of ornamental fish culture practice in India. It would pave the way for the introduction of newer, cheaper products into this field. In this regard medicines from natural sources will be identified, test for its efficiency, assess the cost effectiveness and recommended for the fish breeding technologists (Through State and Central Govt. agencies).

- Several natural products (both plant and animal sources) were suggested in the Indian medicine to improve the fertility and reproductive ability of human beings. Herbal aphrodisiacs gain due importance in Ayurveda, Siddha and Unani. Such natural medicines are very cheap easily (prepared) available, involve very simple technology for application and impart minimum or nil side effects.
Learned and screened traditionally known herbals with aphrodisiac property within the vicinity, selected two potent herbals based on the reproductive inducibility in the chosen ornamental fishes. The selected experimental plants *Hybanthus enneaspermus* and *Pedalium murex* were commonly available throughout the state of TamilNadu and in Sounth India.

The alcoholic extract of *Hybanthus enneaspermus* and *Pedalium murex* were tested with two ornamental fishes, *Poecilia reticulata* (viviparous) and *T. trichopterus* (oviparous). *P. reticulata* is an asynchronous brooder, breed’s year round, spawns at the interval of 30 days. Normally it lays 10-20 young ones. It is a multispawner. *T. trichopterus* is also an asynchronous brooder breeds year round at 30 days interval. This is a multispawner lays 1000-2000 eggs. The above selected ornamental fishes fetch greater demand among the aquarium keepers throughout the world and very much attracted because of their colouration.

Administration of *H. enneaspermus* to *P. reticulata* through oral drops, feed and medium yielded encouraging results in the reproduction. Spawning duration was considerably reduced to 22-24 hrs and given birth of 25-30 young ones in single spwan. *P. murex* treatment also yielded desirable results, the spawning duration was reduced 30 to 40 hrs in *P. reticulata* with more number of young ones (48 to 52).

Administration of *P. murex* to *T. trichopterus* through intra muscular injection, the spawning duration was reduced 40 to 46 hr with more egg output. Otherwise the duration is prolonged for more than 3 days in *P. reticulata* and *more* than 10 days in the case of *T. trichopterus*. The spawning efficiency was compared with other synthetic ovulation inducing commercial hormones (ovaprim and Pituitary).

The two herbals powder were treated with *T. trichopterus* from 1ppt to 20 ppt level through feed. The growth and maturation at each level were
recorded for every 15 days till 45 days. The herbal powder mixed feed fed fishes imparted higher growth and maturation than the control and indicated that the faster growth (at 1ppt) and maturational (at 5 and 10ppt) effect of *H. enneaspermus* and *P. murex* at lower concentration than at higher concentration (20ppt). Higher GSI and SGR were observed in all the treated fishes than control.

- The effect of alcoholic extract of *P. murex* plant and seed as well as ovaprim was observed in the ovarian development, histologically in the treated ornamental fishes. The follicular frequency (different stages of oocyte) in *T. trichopterus* were observed after treatment. Both vitellogenic and maturation phase were get induced in all treated fishes. Maturation and ovulation were triggered faster in the *P. murex* seed and plant treated than ovaprim treated fishes.

- Histological studies revealed that the *P. murex* treatment faster the maturation of the oocyte in pre vitellogenic and post vitellogenic stage of *T. trichopterus* and expedite growth and embryonic development of *P. reticulata*.

- The active phytal compounds responsible for induction of ovulation in the experimental fishes were identified through TLC and quantified through HPLC.

- Isolated and extracted the bioactive compounds L-Dopa in *H. enneaspermus* and Diosgenin in *P. murex* were experimented in chosen fishes which yielded excellent results in the spawning efficiency and was compared with the standard treated fishes. Both plant extracted and the commercial compounds imparted similar results.

- The bioactive compounds were quantified through HPLC. L-Dopa was found be 0.0123% in *H. enneaspermus*. Diosgenin content was 0.0691% in *P. murex* plant and 0.072% in *P. murex* seed.
Among the treated plants *H. enneaspermus* through L-Dopa impart ovulatary effect by reducing the latency duration and the *P. murex* through diosgenin impart maturational effect by enhancing the number of egg/young one production.

When comparing the cost effectiveness, the tested plants with aphrodisiac property were very cheap year round availability (they are the weeds of waste lands) and the preparation technology also very simple.

The induction of spawning in the experimental fishes by *H. enneaspermus* through L-dopa and by *P. murex* through diosgenin would support the folklore use of the plant as an aphrodisiac.

The aphrodisiac herbals can be screened for species specific effect and their easy application technology was suggested for aquarists to strengthen their business.

Rapid development of ornamental fish farms generate much needed sizable foreign exchange; create employment opportunities in rural area particularly women employment. It would be a boon to the national economy.

By linking the women with credit technology, infrastructure, training, and trade this enterprise can become a powerful tool in improving the lively hood and economic security of the rural women.

Establishment of more hatcheries, application of suitable simple technology employing use of aphrodisiac plants for mass production, necessary infrastructure facility with subsidy would promote the ornamental fish trade in India became a well regarded profitable trade in the global scene.

Since it is the first attempt on the use and standardization of herbal extract for mass production of ornamental fishes in captive condition, the results of the present research work would definitely be beneficial to researchers and fish farmers in India and abroad.