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RESEARCH PAPER:

Application of induced breeding practices for conservation of fishes in the Thar desert

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SUMMARY

Twelve induced spawning exercises were conducted on *Cyprinus carpio*, *Labeo* rohita and *Cirrhinus mrigala* in the modified CIFE-D81 Hatchery unit in Jodhpur using synthetic fish hormones ovaprim and ovatide. The eggs (1.00-3.45 lakhs) were produced by varying the injection time from 7.15 to 4.30 pm. Inducement through ovatide yielded spawn production (1.9204-2.4394 Lakhs) compared to ovaprim (0.4895-1.4509 Lakhs).Studies indicated that ovatide is a more convenient less expensive , indigenous ovulating agent which required low dosage (0.3 ml/kg. brooder) compared to ovaprim(0.5 ml/kg brooder). Thus, by using artificial propagation techniques, the declining and reduction in biodiversity of fish species can be controlled by using a more holistic approach to fisheries management in this semi-arid part of Rajasthan.

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The sustainable utilization of genetic resources, including fish is a vital part in improving the standard of living in a populous country like India. About 11% (2,200) of the total world fin fish species (more than 20,000) have been recorded from the Indian sub-continent.

The single most drawback of large scale commercial culture of several fish species is the deficiency of quality seed of uniform size and free of pests, parasites at the time of stocking in culture ponds. For this reason, the hormonal treatment has been attempted for stimulating gametes maturations and has been successfully used to spawn many commercially important fish species that exhibit arrested reproductive development.

Several commercially available synthetic ovulating agents in ready mode form containing GnRHAand dopamine antagonists like ovaprim, ovatide, ovoepel, Dagin and Aquaspawn are becoming very popular now days and found to be efficient and successful spawning agent in different fish species (Peter *et al.*1988; Das 2004; Brzuska, 2006).

MATERIALS AND METHODS

The induced breeding was carried out at modified CIFE- D81 Hatchery unit of Zoology Department, J.N. University, Jodhpur. The healthy brooders of *Cyprinus carpio, Labeo rohita* and *Cirrhinus mrigala* were collected from the local ponds of Jodhpur. The male brooders have fine denticulations on the dorsal side of pectoral fin rays while female brooders have smooth - to-touch pectoral fin with a soft and bulging abdomen. At least 12 matured females and 24 males were selected for the treatment.

Ovatide (0.3 ml/ kg brooder) and ovaprim (0.5 ml. kg brooder) were injected intramusculary, in the caudal peduncle above of the lateral line of the brood fish. The brood stocks were selected in the ratio of 2: 1 (male : female). The ovatide (Manufactured by Hemmo Pharma , Mumbai) is a synthetic analogue of peptide hormone SGnRH and is a dopamine antagonist dissolved in a mixture of aqueous and organic solvents whereas, the ovaprim (Syndel Laboratory, Canada) contains 20 µg of SGnRH and 10mg of domperidone. The time of injection varied and the brooders (Male – 2.200 kg to 4.100 kg and female 2.00 to 3.900kg) were weighed before and after giving the injections. The fertilization and hatching % was calculated as: