

— SHORT COMMUNICATION —

Brine shrimp *Artemia* disappears from its only inland saline resource in the Thar Desert, Rajasthan, India

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Sambhar and Didwana are two inland hypersaline basins located at the eastern margin of the Thar Desert, Western Rajasthan, India (Fig. 1). They are known for inland salt production. Both, these basins are characterized by centripetal drainage of ephemeral type with absolutely no outflow. Sambhar (26° 50' - 27° 04' N, 74° 52' - 75° 15' E) is the largest inland saline plateau in India, located at an altitude of 350 m above sea level. It covers an area of 190 km² at full capacity with a catchments area of 7560 km². It is a shallow basin with maximum and average depths of 3.00 and 0.61 m, respectively. It is fed by four ephemeral streams, several rivulets and surface run-off. The average annual rainfall in the region is 500 mm.

Didwana (27° 19' - 27° 25' N, 74° 27' - 74° 39' E) basin is another salt water depression about 50 km north-west of Sambhar. It covers an area of 16.5 km² at full capacity. It is located at an altitude of 339 m above sea level. The maximum depth of the lake is 5.0 m. It is mainly fed by rainwater. The average annual precipitation in the region is 330 mm.

The occurrence of vivid parthenogenetic *Artemia* populations has been reported for both Sambhar (Baid, 1958) and Didwana (Bhargava & Alam, 1980) basins. The Sambhar water body became totally devoid of *Artemia* during 1977-1978 (Alam, 1980).

Since then, Didwana was reported to be the only existing natural inland *Artemia* site in India (Bhargava *et al.*, 1987). Recently, the Didwana basin also appears to be devoid of *Artemia* (personal observations). Frequent surveys of both Sambhar and Didwana basins have been conducted during the period of 2000-2004 in order to record the presence/absence of *Artemia* and also test their suitability to support again thriving *Artemia* populations.

Soil samples as well as zooplanktonic fauna were randomly collected during 2000-2004 both from Sambhar and Didwana in different seasons (monsoon, winter and summer). Salinity of the water was recorded at the time of sample collection. The water was subsaline (2-16 ppt) during good monsoons (August - September), mesosaline during winters and hypersaline (250-300 ppt) during summers (May - June). Zooplankton samples were collected by filtering 25 l of water through a plankton net (bolting silk No. 25). A minimum of 3 samples were collected from different locations each time. Samples were fixed with 5% formalin. No presence of *Artemia* was observed in both Sambhar and Didwana basins. All samples were devoid of any stage of *Artemia* life cycle. The dominant zooplanktonic forms observed were *Cyclops* sp., *Brachionus* sp. and *Moina* sp. at salinity below 70-80 ppt.

Soil samples were collected both from the shore (dry soil) and the lake bottom (wet soil). Wet soil samples were allowed to dry in an enamel basin cov-

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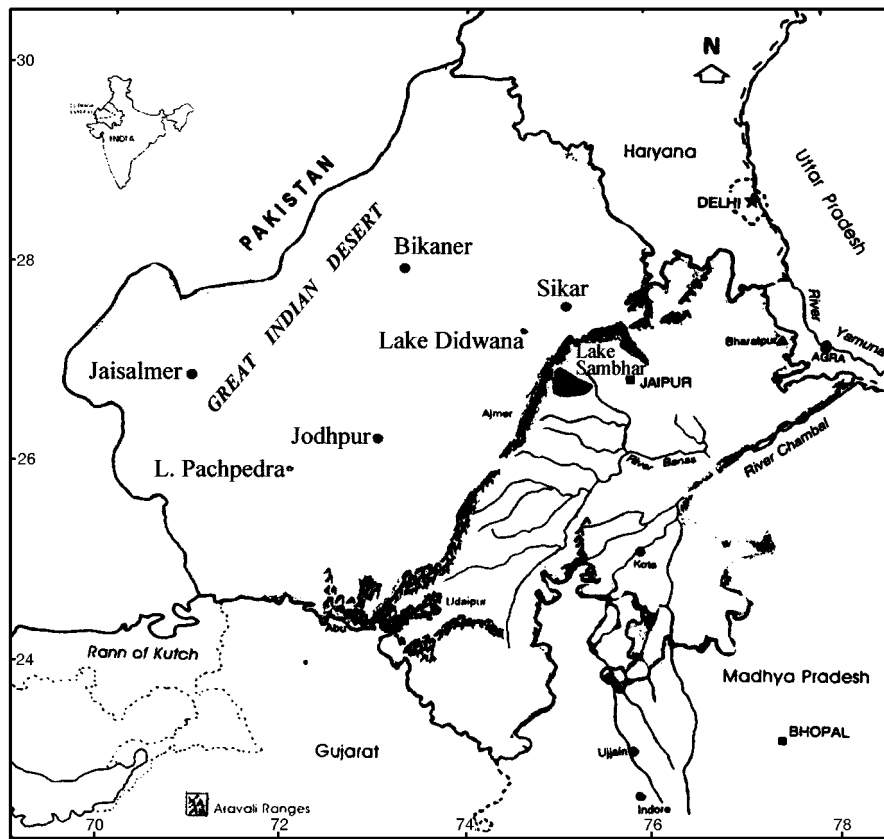


FIG. 1. Location of the Sambhar and Didwana salt Lakes.

ered with a thin cloth. All samples were examined for the presence of *Artemia* cysts. About 100 g of soil from each sample were vigorously stirred in 500 ml of 35 ppt seawater for about 30 min and subsequently allowed to settle for 5-10 min. The supernatant was filtered through a 200 μ m sieve to discard the larger particles. The filtrate was gathered in conical jars used for *Artemia* cyst hatching. The soil suspension was aerated vigorously for 48 h in the presence of strong light. No nauplii were recorded. In a number of samples, the seawater was replaced with lake water diluted to reach a salinity of 35 ppt. Again, no nauplii were detected. Settled soil particles were also collected in separate hatching jars and re-suspended in fresh seawater, kept under light and aerated. No *Artemia* nauplii were observed. Some of the soil samples were also washed with 5% sodium hypochlorite to remove cyst chorion (decapsulation). Following hatching, no presence of *Artemia* nauplii were recorded in any of the soil samples. The examination of soil and water samples from both Sambhar and Didwana basins indicates that no *Artemia* is found in Sambhar and also it has disap-

peared from Didwana where it was present during 1984-1985 (Jakher *et al.*, 1990). Further efforts are needed to determine the cause of *Artemia* disappearance from both sites of the Thar Desert.

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