sessile, ovate, obtuse or subacute. Flowers rosy in colour; pedicels of central flower O, of others short and winged or O (Fig. 1).

The specimens *Oza* 231975, 331975, have been deposited in the Blatter Herbarium (BLAT) of St. Xavier's College, Bombay.

ACKNOWLEDGEMENTS

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G. M. OZA

GENERAL EDUCATION CENTRE,
MAHARAJA SAYAJIRAO UNIVERSITY OF BARODA,
BARODA 390 002,
June 3, 1975.

24. THE OCCURRENCE OF *PHALARIS MINOR* RETZ. IN MAHARASHTRA STATE

A weed having some characters similar to bajra and some to wheat, was located on the farm of the College of Agriculture, Pune, by us. It can be easily mistaken to be a mutant of bajra or wheat. It is commonly known as *chiria-bajra* or Duthie grass and is used as fodder *Phalaris minor* Retzius (1784) is one of the five species of the sub-tribe Phalaridae Kunth, and is distributed in the Mediterranean region and Baluchistan.

As described by Hooker (1896) its stem is 1 to 3 feet long, slender and hollow; leaves long narrow with festucoid anatomy, and oblong silica cells; ligules membraneous, linear, acuminate; sheath smooth. Panicles small and ovoid, longer and cylindric $1\frac{1}{2}$ inches and $2\frac{1}{2}$ inches long by $\frac{3}{4}$ inch diameter, green, spikelet 1/5th long, very shortly pedicelled, shiny.

The species with $2n = 28$ chromosome is an annual with spikelets all similar, lower reduced, hermaphrodite, strongly compressed three flowered with the two lower florets, barren and reduce to the lemmas or one or both absent; rhachilla disarticulating above glume but not above the florets; glumes persistent, equal and as long as the spikelet; lower two lemmas small, sometimes reduced to minute scales fertile lemma becoming indurated, awnless five nerved; palea as long as the lemma, two nerved, two keeled. Loducles two; stigmas two; stamens three. Grain closely invested by the indurated lemma and palea, hilum oblong, short, embryo small; starch grain compound; wings of the glumes minutely serrate and undulate, sterile lemmas are very dissimilar, the lower very minute, the upper about one-third of the spikelet (Kunth 1829-34).

The species is resistant to diseases under field conditions and could be used in improving related grasses. In addition to Pune region the species also was seen last year in Nasik and Satara districts. It might have been introduced in Maharashtra as an adulterant

in wheat as it was found to be quite vigorous in rabi season.

The meiotic studies of the plant showed slight irregular behaviour of chromosomes. The bridges, laggards and tetrads with micronuclei were also observed. Multivalents at metaphase-I were also recorded and this may be due to the allosyndetic pairing of the chromosomes. From the meiotic behaviour of this species, it may be presumed that it may have originated from two allied groups having $2n = 14$ chromosomes and subsequent diplodisation.

A specimen of the species has been deposited in Botanical Survey of India, Pune.

BOTANY DEPARTMENT,
COLLEGE OF AGRICULTURE,
PUNE 411 005,
July 4, 1975.

S. D. UGALE
R. C. PATIL

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25. *ISOETES* IN RAJASTHAN

(*With a plate*)

Two new forms of *Isoetes* have been discovered in South East Rajasthan since the genus was first recorded in 1969 from Mt. Abu in South West Rajasthan. Morphological features of all the Rajasthan forms of *Isoetes* are described and comparisons made with seven species of the genus known from India. Dissemination of spores in nature and reproduction in the genus is commented upon in the light of observations made in the field and in the garden. Similarities between *Isoetes* and water fern *Marsilea* in respect of habitat, vegetative reproduction and sporal aberrations are emphasized.

Mital (1969) recorded the occurrence of an *Isoetes* sp. for the first time in Rajasthan from Mt. Abu in his catalogue of the ferns and fern-allies of Rajasthan. Another locality for *Isoetes* —at Atru, a Tehsil about 100 kilometres from Kota in SE. Rajasthan has now been discovered. *Isoetes* was found growing in ponds and ditches just near the Railway line at this locality. Two distinct forms of the genus, one larger with plants measuring upto 45 cm (Fig. 1) and the other with very small plants (upto 6.5 cm) in height grow at this place. The bigger form grows in the ponds and ditches in an aquatic habitat mostly with occasional incursions on land, the smaller form being confined to the drying margins of these ponds and ditches. A preliminary examination of these three *Isoetes* forms of Rajasthan, one at Mt. Abu (Fig. 9) and the other two at Atru (Figs. 1 & 5) from the point of view of specific determination yielded morphological features found in none of the Indian species described so far.

It is possible to distinguish these three *Iso-*



Ugale, S. D. and Patil, R C. 1976. "The Occurrence of Phalaris Minor Retz. in Maharashtra State." *The journal of the Bombay Natural History Society* 73, 558–559.

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