spp. indicates their adaptive strategy as the availability of water with reduced NaCl content in soil during the rainy season is for a short duration. This is because evaporation of moisture under bright sunlight and heat, increases the salt content by a capillary movement. If a seed can take advantage and grow fast, the seedling establishment is ensured and this is what is achieved in these two species.

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SORGHUM PURPUREOSERICEUM (A. RICH) ASCHERS. AND SCHWEIF SUB SP. *DIMIDIATUM* (STAPF) GARBER: OCCURRENCE, MORPHOLOGY AND CYTOLOGY

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SORGHUM Moench is a heterogeneous genus and subdivided into sections *Chaetosorghum*, *Heterosorghum*, *Parasorghum*, *Sorghum* and *Stiposorghum*[1]. The section *Parasorghum* contains about 8-10 species of annual and 75 perennial wild grasses[2]. Very little work has been done on the cytomorphology of these wild sorghum types, probably because of the non-availability of viable seed in any germplasm bank in the world. One such species, *Sorghum purpureosericeum*, belonging to the section *Parasorghum*, is reported to have two subspecies: *deccanense* and *dimidiatum*[3].

In a 1979 germplasm collection mission to eastern Sudan, organized by the ICRISAT, four *Parasorghum* panicle samples were collected and their locations are shown in table 1.

These samples were brought to the ICRISAT Centre through the Indian Plant Quarantine Service, and they have been conserved in the ICRISAT gene bank at 4°C and 20% RH. They were grown and studied in the ICRISAT Botanical Garden during the 1981/82 post-rainy season and identified as *Sorghum purpureosericeum* subspecies *dimidiatum* by

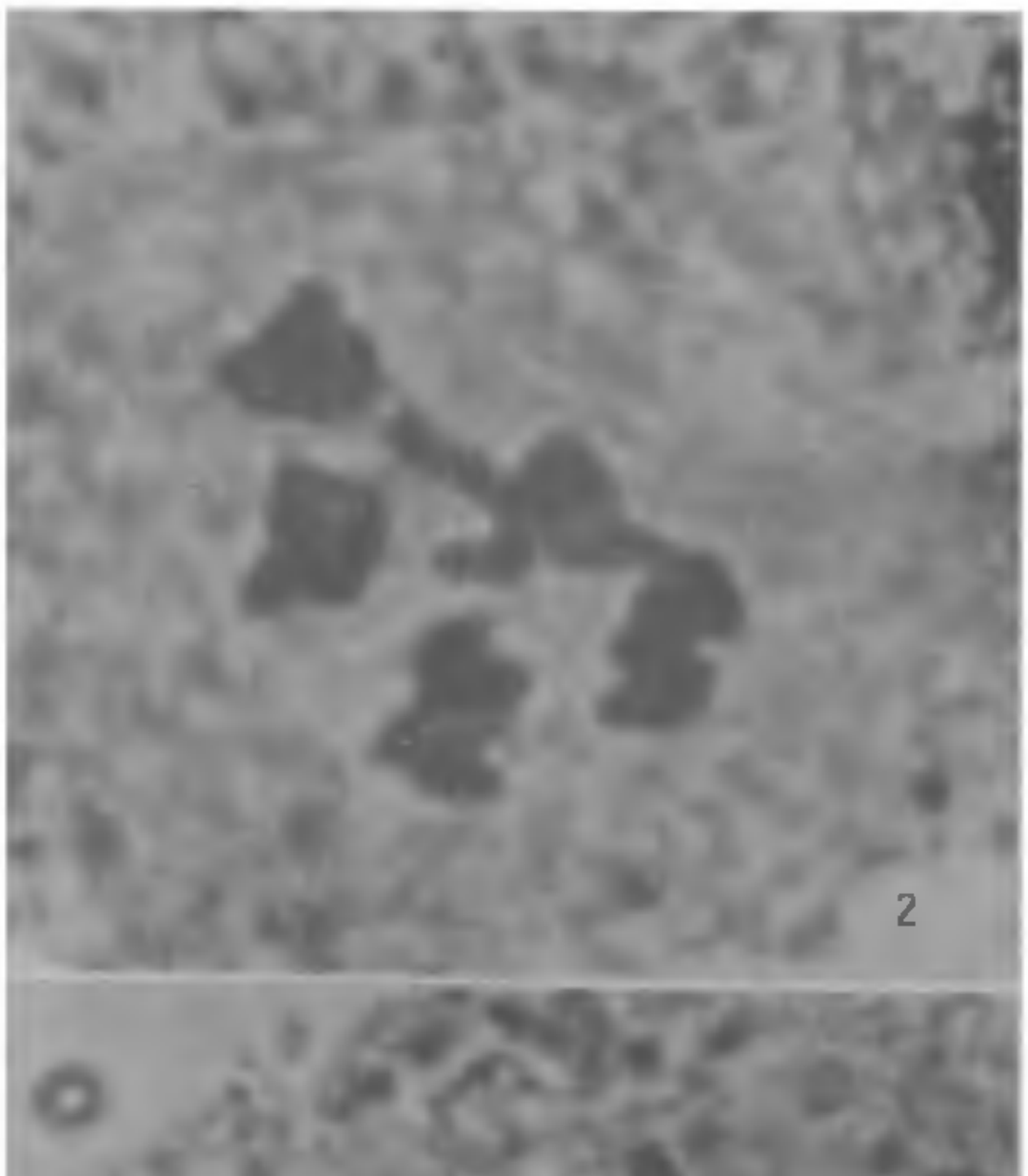
Table 1 *Details of parasorghum panicle samples [local name: Anees] collected from different locations*

Collection No.	Province	Exact location	Mean annual rainfall (mm)
PGI 44	Kassala	Komshetta	576
PGI 47	Kassala	Doka	576
PGI 68	Kassala	23 SW Samsum	576
PIA 113	Blue Nile	170 SW Damazin	730

Figure 1. *Sorghum purpureosericeum* subspecies *dimidiatum* showing ligule hairs, bearded sheath nodes, simple panicle branching and long awns.

their distinguishing morphological characters discussed below.

Nodes of the culms bearded; prominent ligule hairs; whorled and simple primary branches of the panicle; terminal racemes (figure 1); callus of the sessile spikelets obtuse, sessile spikelets around 9 mm long and 3 mm wide; awns of the sessile spikelets prominent and around 30 mm long; glumes of sessile spikelets constricted, indurate below and membranous above the constriction, essentially glabrous except at base. Pedicelled spikelets around 8 mm long and 2 mm wide, staminate or neuter, lacking lemmas; mature caryopsis obovoid.



Figures 2 and 3. 2. Diakinesis showing 5 bivalents, and 3. Anaphase I showing 5–5 distribution.

The meiotic behaviour was studied. Young inflorescence for pollen mother cell (PMC) smears was fixed in carnoy's solution[4] for 24 h and later preserved in 70% alcohol. The anthers were smeared in acetocarmine (2%) stain, and photomicrographs taken from the temporary slides. The chromosome number in this subspecies is $2n=10$, as determined from the study of meiosis in PMCs. At diakinesis (figure 2) and metaphase-I, the ten chromosomes invariably formed 5 bivalents. One bivalent was seen associated with the nucleolus. Anaphase-I (figure 3) and the subsequent stages of meiosis were regular. The present study confirms the earlier counts of $2n=10$ chromosomes of *S. purpureosericeum* subspecies *dimidiatum*, reported by Garber[3].

These parasorghum types collected in Sudan are used for making strong rope. This could be due to the presence of lignified sclerenchyma in the peripheral fibrovascular bundles of the stem, a trait that could provide resistance to shoot fly (*Antherigona soccata*) or stem borer (*Chilo partellus*) if it is transferred to the cultivated sorghum.

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ELECTRON MICROSCOPIC STUDIES OF *XANTHOMONAS CAMPESTRIS* PV. *RICINI* (YOSHI AND TAKIMOTO) DYE

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BACTERIAL leaf spot and blight of castor caused by *Xanthomonas campestris* pv. *ricini* is a severe disease of castor crop, particularly in Gujarat, Maharashtra, Andhra Pradesh and Tamil Nadu; it was severe in Rajasthan a few years ago[1].

It is very difficult to study the process of binary