MYCOLOGICAL NOTES ON SOME INDIAN RUST FUNGI

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AECIAL and uredinial stages of Puccinia cephalandrae-indicae:

Sydow and Butler1 described Puccinia cephalandrae-indicae based on a rust infected specimen of Cocculia indica (= Cephalandra indica). They described telia and teliospores only. The only other report of this rust from India is that of Rangaswami et al.2 but it is not clear which spore forms they observed. Recently, we have examined rusted C. indica having both aecial and uredinial stages. They are described here.

Aecia hypophyllous, rarely epiphyllous, dense, closely aggregated but rarely coalescing, covering the entire lamina of the leaf, orange brown, 1 mm diam, cupulate, subepidermal, erumpent, pulverulent, peridiate; aeciospores 18–30 × 13.5–18 μm, ovate to ellipsoidal, often papillate, wall 2 μm thick, verrucose.

Uredinia hypophyllous, scattered, subepidermal, erumpent, pulverulent, ruptured epidermis conspicuous, cinnamon brown, 0.2–0.5 mm diam; urediniospores 24.5–35 × 17.5–28 μm, globose, subglobose, ovate to ellipsoidal, wall 2–3.5 μm thick, golden yellow, echinulate, germ pores not clear but probably 2, equatorial.

Spermatogonial stage of Puccinia abutili:

The rust taxon Puccinia abutili was named by Berkely and Broome.3 Sydow and Sydow4 gave the geographical distribution and host range of this fungus. From India the occurrence of this rust fungus was reported by Mundkur and Thirumalachar3 and Salam and Ramachar.5

Sydow and Sydow listed 11 species of Puccinia parasitizing the members of the family Malvaceae. Of these 11 species, except for P. sphaeraceae Ell. and Ev., all the other species, including P. abutili, are microcyclic. However, a recent collection of rust-infected specimens of Abutilon indicum Sweet showed spermatogonia in addition to telia as reported here.

The spermatogonia are hypophyllous with a yellow halo around them, minute, aggregated in small groups, glossy translucent with pale orange coloured dried up gummy exudate at the top. Vertical section of the leaf revealed flask-shaped spermatogonia with a strongly convex hymenium. The spermatiophores are hyaline, smooth, thin walled, and cut off spermatia acrogenously. They collect at the mouth of the spermatogonium. Spermatogonia measure 140 μm in height and 105 μm wide. Growth of spermatogium is determinate with well-developed periphyses, type 4 of Hiratsuka and Cummins7.

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**NATURAL TETRAPLOIDY IN THE GENUS FAGONIA L. (ZYGOPHYLLACEAE)**

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*Fagonia* L. comprises about 50 species mainly distributed in the dry regions of the old and new world. Only 8 species have been subjected to cytological investigation so far; the chromosome numbers reported1-3, suggest that the genus is tetrasomic with basic numbers 9, 10, 11 and 12.

During the course of the revision of the Indian species of *Fagonia* L., cytological studies on some of the taxa occurring in Rajasthan and Gujarat were carried out to assess the possibility of utilising the data for taxonomic treatment.

The chromosome numbers were determined from acetocarmine squashes of pollen mother cells after fixing the flower buds in cornoy's fluid (6:3:1). The haploid chromosome number in *Fagonia bruguieri* DC. var. *rechingeri* Hadidi collected from Jaisalmer, Rajasthan (Voucher No. P. Singh-7181, NSIO) was found to be 22 (figures 1 & 2). Incidentally it is not only the first chromosome report for this taxon but is also the only record of natural polyploidy in the genus; the other species of *Fagonia* L. reported so far, are all diploids with n = 9, 10, 11 and 12. The chromosome showed normal pairing, resulting in the formation of 22 bivalents. These bivalents were usually of ring type with both terminal and interstitial chiasmata. No multivalent associations were found, thus suggesting that it is of allopolyploid origin. Meiosis was regular and normal tetrads were formed. The fertility of the pollen grains as ascertained by their stainability with acetocarmine was 92.5% and they measured 32 × 23 μ.

*Fagonia bruguieri* DC. var. *rechingeri* Hadidi hitherto been reported only from Iraq, Iran, Afghanistan and Pakistan. The present report from Jaisalmer, is therefore, the first record of its occurrence in India. This variety differs from typical variety *bruguieri* in having all leaves unifoliolate, sparsely glandular to glabrous.

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