# NEW REPORT OF POLYPLOID CYTOTYPES IN *SMILAX OVALIFOLIA*

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*SMILAX OVALIFOLIA* Roxb (Smilacaceae) is a dioecious species growing chiefly at high altitudes. Earlier systematists treated this species as being synonymous with *S. macrophylla*[1] and *S. zeylanica*[2], but more recently Koyama[3] described it as a separate species. Somatic chromosomes of this species were studied in plants collected from different localities in South India.

Materials were collected from several high altitude regions in the Kerala and Tamil Nadu sectors of the Western Ghats such as Ponmudi, Peermade, Munnar, Kodaikanal and Ootacamund. Root tips were fixed in 3:1 Carnoy's fluid after pre-treatment with 0.002 M aqueous solution of 8-hydroxyquinoline for 2 hr at 4°C. Chromosome preparations were made by squash technique, and stained in acetocarmine. Somatic complements were analyzed following the system proposed by Levan *et al*[4], and karyotype asymmetry determined after Stebbins[5].

There exist three different chromosome numbers in different populations; $2n = 64$, 96 and 128 (figures 1 and 2). The chromosomes are relatively small, and can be grouped into three classes as large (6.00 to 4.00 $\mu$), medium (4.00 to 2.00 $\mu$) and small (2.00 $\mu$). The majority of the chromosomes are medium-sized.

Chromosome reports on species of *Smilax* show that the genus is multibasic ($x = 13$, 14, 15 and 16), of which $x = 16$ is the most frequent, and this number consistently occurs in the more woody taxa. Polyploids are very rare in the genus. The present finding shows that *S. ovalifolia* is a species complex constituting a polyploid series based on $x = 16$ (tetraploid, hexaploid and octoploid). All the three counts are new reports for the species, and the $2n = 128$ is the highest ever known constitution in the genus, and this adds a new cytological dimension to the genus.

Intraspecific polyploidy is often considered to be an initial step in species differentiation, especially when the chromosomal differences in species complexes are correlated with difference in plant morphology[6]. The plants of the three cytotypes reported here exhibited recognizable morphological differences in size and shape of the leaves and thickness and texture of the stem. A detailed taxonomic study of the species complex should prove interesting.

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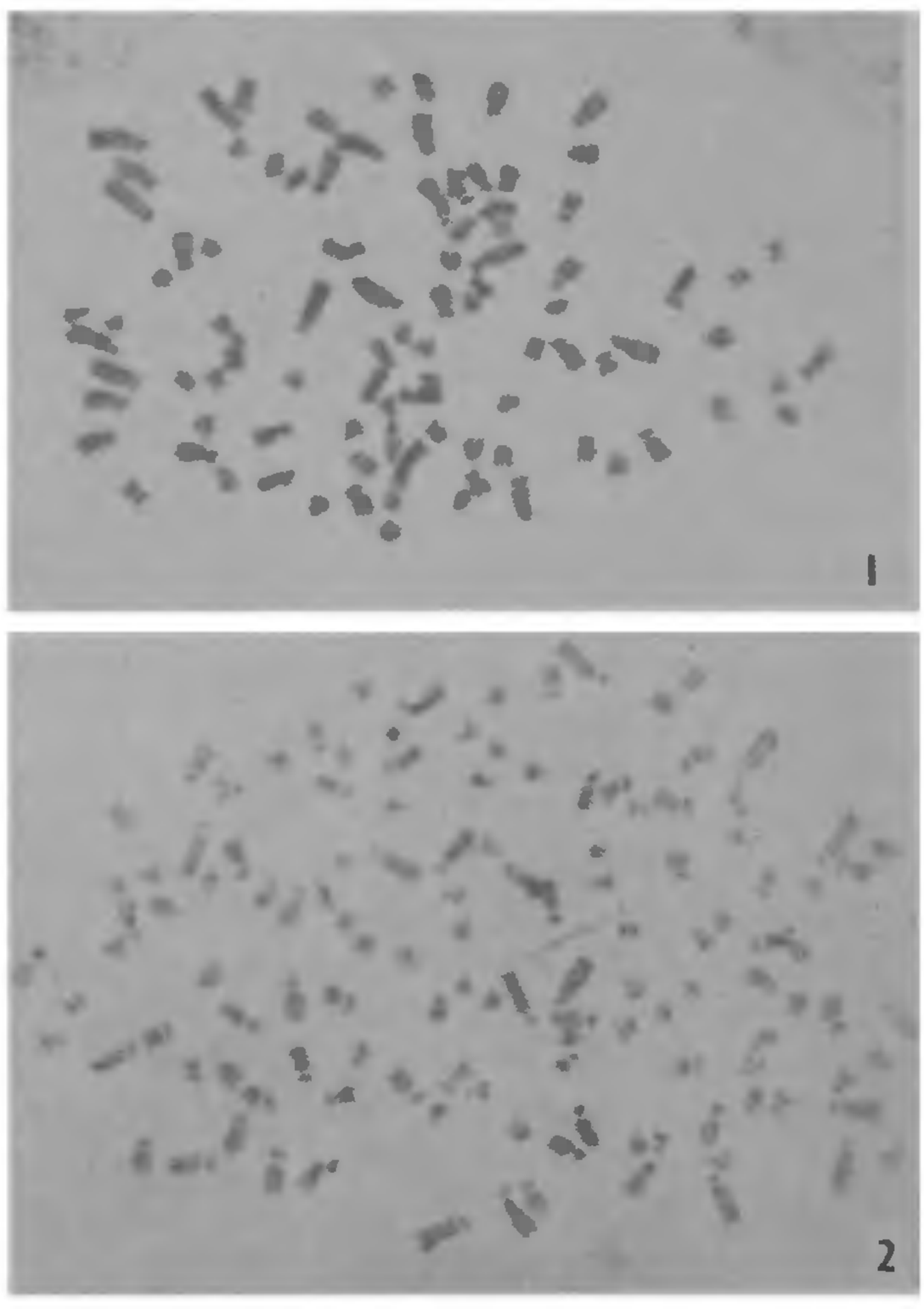

**Figures 1 and 2.** Somatic metaphases in *Smilax ovalifolia* (× 800). **1.** Hexaploid cytotype with $2n = 96$. **2.** Octoploid cytotype with $2n = 128$.

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