Taxonomic Discrimination of *Solanum capsicoides* All. Accessions: A Biosystematic Approach

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ABSTRACT

Scanning electron microscopic (SEM) analysis of leaf, pollen, seed and DNA polymorphism of two accessions (spiny and sparse spiny) *Solanum capsicoides* All. were examined and described. Micromorphological characteristics, particularly exomorphic features can be used in discrimination of plants at intra/ inter specific levels. SEM of seed coat showed compactly packed dense irregular units in spiny accession whereas, rugulate in lax spiny accession with lumen and muri pointed towards the hilar region. Leaf micromorphology revealed glandular and non glandular trichomes, which differ in structural morphology among the accessions. Pollen grains are radially symmetrical, isopolar, prolate-spheroidal or sub-prolate and tri- zonocolporate. Dimorphic to trimorphic pollen with varied sculpturing patterns are the other observed characters among the accessions. 100% DNA polymorphism was shown by the accessions with 15 decamer RAPD primers employed supporting the micromorphological variations. The number of bands per primer ranged from one to three. OPA 7 (GGCGGACTGT), 8 (GTCACTCCCC), 9 (ACCGCGAAGG) and 10 (GGACCCAACC) may be used to discriminate spiny accession from the other. The unique IR fingerprints for spiny accessions are 345.26, 3514.3, 3558.67, 3597.24, 4688.95 and that for lax spiny samples are 362.62, 426.27, 453.27, 493.78, 621.08, 665.44, 02.09, 777.31, 916.19, 2331.94, 2370.51 and can be employed in identifying the accessions using IR spectroscopy. On the other hand, bands at 480.28, 514.99, and 1022.27 are shared between the accessions.

Key words: Pollen morphology, RAPD markers, SEM, seed surface, *Solanum capsicoides*, stomatal index, vein islets

Abbreviations: IR spectra- Infra red spectra, RAPD- Random amplified polymorphism of DNA, SEM- Scanning electron microscopy

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