

ABSTRACT

The Phytolaccaceae comprises a weedy family of largely tropical and subtropical plants which have been placed, almost without exception in the order Centrospermae. It is a relatively natural order, best characterised by its uniform placentation and ovule structure. Phytolaccaceae is commonly called pokeweed family. Many members of the family possess highly potent and useful biological properties including antifungal, antibacterial, antiprotozoal, spermicidal and insecticidal activities. The selected members for the present study also proved as sources of different phytoconstituents. The South Indian representatives of the family were analysed and discussed on the basis of the morphological, biochemical, pharmacognostic and molecular data.

In the present investigation the three South Indian members of the family Phytolaccaceae such as *Phytolacca octandra* L., *Petiveria alliacea* L. and *Rivina humilis* L. were taken into consideration to study the biochemical parameters like variation in the amount of carbohydrates, photosynthetic pigments, amino acids and proteins. The polypeptide profiles of members were compared by SDS-PAGE. Pharmacognostic features such as macro and micro morphological characters, secondary phytoconstituents such as alkaloids, flavonoids, resins, tannins and saponins were studied. HPTLC analysis of phenolic compounds was also conducted. Bioactivity analyses

were conducted to study the antibacterial and antifungal properties. Phenotypic and genetic variation of the accessions were analysed. The genetic diversity was investigated by randomly amplified polymorphic DNA (RAPD) analysis.

The present investigation revealed that the species studied are phytochemically and pharmacognostically valuable as potent source of plant drugs.

KEY WORDS: *Phytolacca octandra* L., *Petiveria alliacea* L., *Rivina humilis* L., Photosynthetic Pigment, Protein, Amylase, Polypeptides, SDS-PAGE, HPLC, Phytoconstituents, Alkaloid, Flavonoid, Resin, Tannin, Saponin, Sterol, Benzoic Acid, Gallic Acid, HPTLC, Antibacterial, Antifungal, Accessions, Morphometric, Phenotypic Variation, Polymorphic, Genetic Diversity, Genetic Identity, RAPD.