for secretory material is more and, therefore, there is a depletion of secretory material in the cells.

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CHEMOTAXONOMY OF A FEW MEMBERS OF SCROPHULARIACEAE

SCROPHULARIACEAE include 220 genera and 3000 species (Willis[11], 1966) and some of these are parasitic like species of *Striga* and *Sopubia*. While the members of the family including parasitic species, have received attention from such aspects as of floral anatomy, embryology, palynology and cytology, they have not received much attention from the discipline of chemotaxonomy. The literature on this aspect has been cited by Gibbs[5] (1974). The present paper deals with the chemotaxonomy of *Sopubia delphinifolia* (L.) G. Don., *Striga angustifolia* (D. Don) Sald, *S. sulphurea* Dalz., *S. asiatica* (L.) Kuntze, *S. densiflora* (Bentham) Bentham and *S. gesnerioides* (Willd) Vatble.

The materials of these species for the present study were collected from plants growing wild in the Kakatiya University campus. Using 80% ethanol extracts of entire plants at the time of flowering and fruiting, tests for the following substances were carried out: carbohydrates (Molisch test), saponins, tannins, flavonoids, alkaloids, phenols, indoles (Ehrlich test), leucoanthocyanins, triterpenoids (Noller's test) and, triterpenoids/steroids (Liebermann-Burchard test). Syringin test, Maule test, HCl/Methanol test, cigarette test, hot water test, leucoanthocyanins test 'A' and Aurone test 'A' (Gibbs[5], 1974) were done using fresh stems, leaves and flowers.

The results of the tests are presented in Table I.

It will be seen from the table that all the species gave +ve reactions for carbohydrates, flavonoids, phenols, maule test, cigarette test and hot water test. The last two tests, namely, cigarette and hot water tests could not be carried out for *Striga gesnerioides* since they are leafless. Uniformly negative results were obtained for tannins, triterpenoids, alkaloids, indoles, leucoanthocyanins, syringaldehydes, HCl/methanol test and Aurone test 'A' in the case of all the taxa. The last test was carried out only for the flowers of *Striga sulphurea* which are yellow. Thus all the species exhibit a uniformity in their chemical characters. *Striga gesnerioides* and *Striga densiflora* gave positive reaction for saponins, while the rest of the species gave negative reactions. In case of *Sopubia delphinifolia*, however, the saponin test is doubtfully positive.

TABLE I

Name of the Plant	Molisch test	Saponins	Tannins	Flavonoids	Noller's Test (Triterpenoids)	Alkaloids	Phenols	Ehrlich test (Indoles)	Leucoantho-cyanins	Liebermann-Burchard test Triterpenoids/ steroids	Syringin test	Maule test	Cigarette test	Hot water test	Leucoantho-cyanins test 'A' (Gibbs)	Aurone test 'A'	HCl/Methanol test (Gibbs)
Striga angustifolia	+	–	–	+	–	–	+	–	–	+	–	+	+	+	–	–	–
Striga asiatica	+	–	–	+	–	–	+	–	–	–	–	+	+	+	–	–	–
Striga sulphurea	+	–	–	+	–	–	+	–	–	–	–	+	+	+	–	–	–
Striga gesnerioides	+	+	–	+	–	–	+	–	–	+	–	+			–	–	–
Striga densiflora	+	+	–	+	–	–	+	–	–	+	–	+	+	+	–	–	–
Sopubia delphinifolia	+	?	–	+	?	–	+	–	–	?	–	+	+	+	–	–	–

For Noller's test for triterpnoids all the species gave negative results while *Sopubia delphinifolia* gave a doubtfully positive reaction. In *Striga angustifolia*, *Striga gesnerioides* and *Striga densiflora*, the Liebermann–Burchard test (triterpenoids/steroids) is positive indicating the presence of steroids in these taxa. Interestingly enough, *Sopubia delphinifolia* gave doubtfully positive results for both these tests. This may seem to indicate the doubtful presence of both triterpenoids and steroids.

From the above discussion, it is clear that all the species under the present study agree closely in their chemical characters. They also resemble broadly the other taxa of Scrophulariaceae in these characters. Further, the available data from disciplines like morphology (Varghese[10], 1967), anatomy (Metcalfe and Chalk, 1950), palynology (Erdtman[4], 1971) and embryology (Davis[3], 1966; Tiagi, 1956[6], 1965[7], 1966[8]; Arekal[1], 1966; Arekal and Raju[2], 1967; Tiagi[9], 1968) also show that the taxa included in the present study resemble the other taxa of Scrophulariaceae.

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SHORT SCIENTIFIC NOTES

Dissociation Products and Dissociation Energies of $X^1\Sigma$ and $B^1\Sigma$ States of Diatomic MgS

As the diatomic MgS is chemically stable, it is of interest to determine the dissociation energies and dissociation products of the ground and excited states of MgS molecule in understanding the nature of the chemical bond. From the experimental data available on the $X^1\Sigma$ and $B^1\Sigma$ states of MgS[1], potential energy curves have been drawn for the ground and the excited $B^1\Sigma$ states using the RKRV method. These curves have been used to determine the maximum and minimum points of vibration for these two states.

The dissociation energies of these two states have been estimated by fitting the empirical functions[2] of Lippincott, H–H and the electronegativity functions to the true potential curve. The estimated values of the ground $X^1\Sigma$ and excited $B^1\Sigma$ states are 2·4 ev and 2·2 ev respectively. By using the estimated dissociation energies, excited $B^1\Sigma$ state is found to dissociate into an excited Mg (^3P) and an unexcited S (^3P) whereas the ground state ($X^1\Sigma$) dissociation products are written down in the traditional way[2] as an unexcited combination of Mg (^1S) and S (^3P) atoms which are in consistency with the Mullikanes correlation of atomic and molecular states.

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