Table 2 *Estimation of Ag(I) in the presence of chloride ions*

Wt. of Ag(I) taken as AgCl(g)	Wt. of Ag(I) found (g)	% deviation
0 0539	0.0537	−0.40
0.1116	0.1115	−0.09
0.1488	0.1486	−0.13
0.1674	0.1676	+0.12
0.2232	0.2230	−0.08
0.2790	0.2800	+0.36

must therefore be absent. Bromide, if present even in minute amounts, forms AgBr which is only partially converted to the silver-2-thioorotate complex. Ag(I) undergoes no reaction with the 2-thioorotic acid. Hence bromide and iodide should be absent.

2-Thioorotic acid (amm. salt) has thus been found to be a suitable gravimetric reagent for the estimation of Ag(I) ions. The percentage diviations have been found to be within $\pm 0.4\%$.

An important advantage of the method is that the accuracy of the estimation was not affected adversely by the presence of chloride impurities. The chlorides, on the other hand, facilitated coagulation resulting in easier filtration. Chloride contamination of water and chemical reagents will thus not affect the accuracy of the Ag(I) estimation.

MS expresses gratefulness to CSIR for the award of a fellowship.

15 March 1983; Revised 13 August 1983.

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STEROLS FROM *RUELLIA PROSTRATA* POIR.

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THE leaves of *Ruellia prostrata* Poir. is useful for ear diseases and with liquid copal can be used as remedy for gonorrhoea[1]. Earlier investigation revealed only the presence of three flavonoid glycosides *viz.* apigenin 7-glucoside, luteolin 7-glucoside and apigenin 7β-glucuronide from buds and flowers[2].

In the present communication the presence of sterol mixture obtained from petroleum ether (60–80°) extraction of the dry weed (2 kg) is reported. The gummy matter (16 g), obtained after solvent removal, was chromatographed over silica gel (BDH) and on subsequent elution with petroleum ether-benzene (4:1) furnished TLC pure steroidal fractions (S_1 −120 mg.). The sterol fraction on acetylation followed by preparative argentation TLC on a $AgNO_3$-silica gel G (1:4, w/w) plate using CCl_4-CH_2Cl_2 (5:1, v/v) as developing solvent resulted in the separation of two distinct bands: band 1 (R_f 0.13), band 2 (R_f 0.1) and the most polar faint band (R_f 0.06). All these three bands were subjected to gas chromatographic analysis on a OV-17 scot glass capillary column (30 m × 0.3 mm i.d.) under column temp. 255°C and N_2 as carrier gas at the rate of 0.60 ml/min. The constituents were identified through Co-GLC studies with authentic samples. Band 1 gave a mixture of acetates of sitosterol, 24-methyl cholesterol and trace amount of cholesterol. Band 2 afforded stigmasterol acetate and band 3 contains mixture of stigmasterol acetate and trace amount of brassicasterol acetate.

The percentage composition of sterols estimated as their acetates on GLC using identical conditions as previously mentioned, is presented in table 1.

Thanks are due to Dr S. Thakur and Mr. P. Ghosh, for suggestions and help. Sincere thanks are due to

Table 1 *Percentage composition of sterols present in steroidal fraction (S_1) of R. prostrata*

Sterol	Composition(%)
Stigmasterol	75.33
Sitosterol	17 61
24-methyl cholesterol	7.04
Cholesterol	traces
Brassicasterol	traces

UGC for financial assistance and to T.D.B. College authorities for facilities.

27 April 1983; Revised 11 August 1983

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COLOCASIA ESCULENTA (L) SCHOTT. A RESERVOIR OF BUNCHY TOP DISEASE OF BANANA

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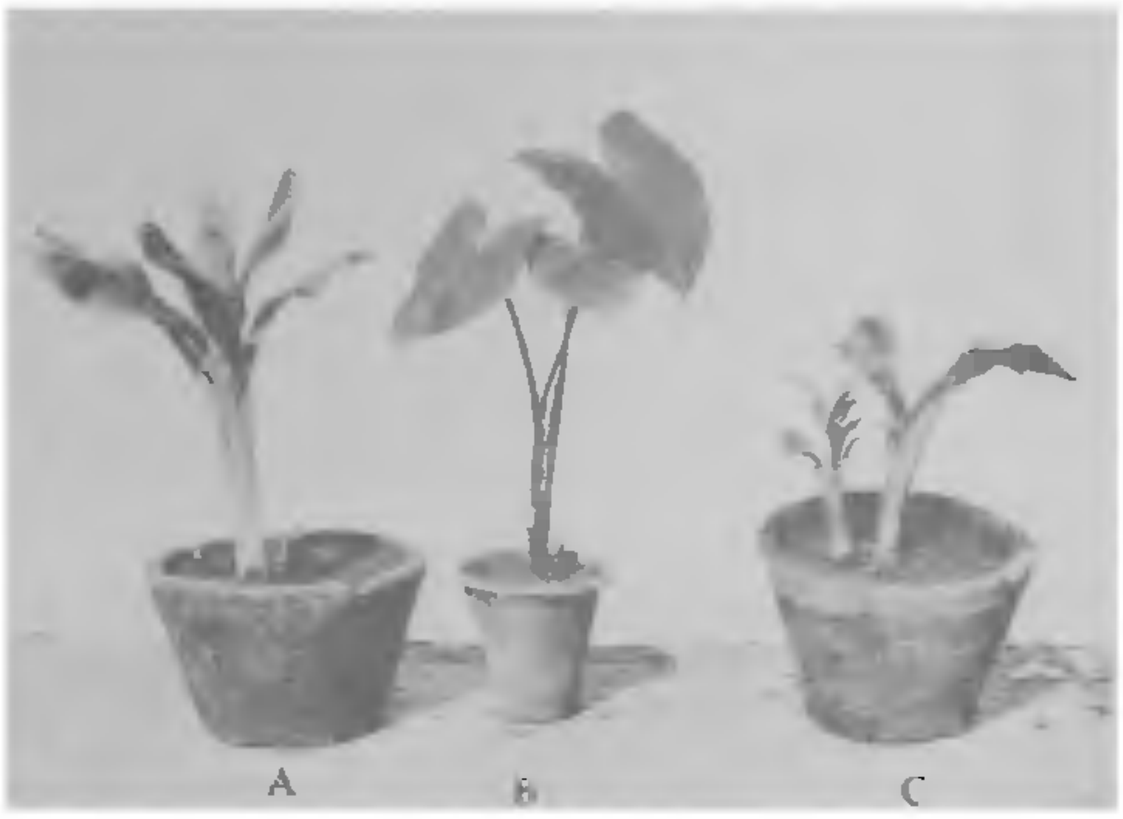
COLOCASIA sp is cultivated throughout the country as its tubers and leaves are used as edibles. In Deccan plateau of Maharashtra, it is taken up as a mixed crop with banana, as a source of additional income. *Colocasia* and *Alocasia* Spp. have earlier been reported[1-2] as additional hosts of banana aphid *Pentalonia nigronervosa* Coq. Studies were therefore initiated under glasshouse conditions to ascertain whether *Colocasia* serves as a reservoir of the bunchy-top disease and if so what is its role.

The experiment set up is described below. Healthy colony of *P. nigronervosa* Coq. was maintained on banana plants in an insectory. The apterous forms of aphid both nymphs and adults were collected in a test tube. They were released on bunchy-top affected banana plants var. Basrai and were allowed to feed for 5 days. Before acquisition, they were starved for 2 hr to accelerate the feeding efficiency on the host. After 5 days of acquisition, they were collected into a group of 45 and released on *Colocasia* plants in insect-free wooden cage (covered with muslin cloth) at the base of leaf stalk. They do not prefer to feed on leaves probably because of their thick and hard nature. Caging was not necessary as the aphids were confined to leave sheath and midrib of the plants. The plants after test/inoculation feeding period of 3 to 5 days were sprayed with 0.1 % rogor to kill the insects. The test plants were kept in the glasshouse for observation. *P. nigronervosa* collected from healthy banana plants and released directly on *Colocasia* host served as



Figures 1A–C. A. Bunchy-top of banana, **B.** *Colocasia* (diseased) symptomless, **C.** Bunchy-top of banana

control set. Even after 3 months the *Colocasia* plants did not show any disease symptoms (figure 1). However, when they were subjected to the diagnostic technique developed against 'bunchy-top' and 'infectious chlorosis' at this station,[3] the test plants gave positive colour reaction typical to that as observed in the bunchy-top affected banana rhizomes/suckers. No colour reaction was observed with healthy *Colocasia* tubers, thereby indicating that *Colocasia* is acting as a reservoir.

Further confirmation was obtained by carrying out back inoculation transmission tests with the vector. Aphids were collected from healthy colony on banana plants, given pre-acquisition fasting period for 2 hr and acquisition feeding period of 5 days on the test plants *i.e.* *Colocasia* symptomless plants. Thereafter both nymphs and adults were liberated on banana healthy plant. After 3 days the banana plants were sprayed with 0.1 % rogor to get the host free from insects. Typical bunchy-top symptoms appeared on test plants of banana (figure 1c) after 6 months further confirming that *Colocasia* acts as a reservoir for bunchy-top of banana in a symptomless manner.

Both the tests *i.e.* colour diagnostic detection test and the transmission tests, *i.e.* diseased banana to *Colocasia* and back to banana gave positive results. Based on these tests, it has been amply proved that *Colocasia* sp acts as a reservoir for bunchy-top of banana in symptomless manner. Further studies on virus-vector relationship are in progress.

18 December 1982; Revised 21 March 1983.