STATUTORY CONTROL OF MOTHER TINCTURES: ACALYPHA INDICA

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Alcoholic extracts of medicinal plants are officially recognised in various pharmacopoeias in different countries. In homoeopathic system of medicine, mother tinctures, which are alcoholic extracts of medicinal plants, find a major place in pharmaceutical practice. Sale and manufacture of homoeopathic drugs have been brought under the purview of the Drugs and Cosmetics Act, 1940[1].

Alcohol content, total solids, weight per ml and assay of total alkaloids usually form the basis of standards in case of other tinctures on various official pharmacopoeias. These, however, do not give exact picture of the authenticity of the raw drug used.

The present study has been undertaken on Acalypha indica tincture which is official in Homoeopathic Pharmacopoeia of India[2]. Acalypha indica is reported to contain an alkaloid acalyphine[3]. The standards worked out in the laboratory particularly detection of acalyphine by T.L.C. is discussed.

EXPERIMENTAL

Materials: Three commercial samples and one standard made from authenticated Acalypha indica whole plant were used.

Reagents: All the reagents employed were of B.D.H. make.

METHODS

Physical constants: Weight per ml was recorded as per I.P. 1966 at 25°. Alcohol content was determined as per method I of I.P. 1966. Total solids was also determined as per I.P. 1966. The results are tabulated in table I.

Table I

	1	2	3	Standard
(1) Weight per ml at 25°	0.886	0.908	0.908	0.902
(2) Alcohol content (% v/v)	63.7	66.0	72.7	66.5
(3) Total solids (% w/v)	0.32	0.65	0.78	0.63

Paper chromatography: 3 µl of the mother tinctures were spotted on Whatman Paper I. The paper was developed by descending technique using

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solvent system butanol: acetic acid: water (4:1:1) in a presaturated tank. The paper was dried and examined under UV light and then exposed to ammonia vapours and again examined under UV light. The results are tabulated in table II.

Table II

	1	2	3	Standard
UV	0.99	0.98	0.98	0.97
UV (NH_3)	0.26	0.24	0.25	0.24

Thin layer chromatography for detection of acalyphine:

50 ml of each of the four tinctures marked 1, 2, 3 and 4 were evaporated and the residues were dissolved in 10 ml of dilute hydrochloric acid. The solutions were transferred to different separators and extracted with 20 ml of chloroform. The acidic layer were made alkaline with dilute ammonia solution and extracted with 10 ml of chloroform. The chloroform layers were evaporated to dryness and the residues were dissolved in 1 ml of methanol. 5μc of the solutions were spotted on silica gel G plate and developed with two different solvents. The plates were dried and sprayed with Dragendroff's reagent. The brick red spots were marked. The results are tabulated in table III.

Table III

	1	2	3	Standard
A. Butanol: Ammonia 9.5 : 0.5	0.40	0.42	Absent	0.42
B. Chloroform: Methanol 9 : 1	0.92	0.93	Absent	0.92

RESULTS AND DISCUSSIONS

On perusal of results obtained for the different mother tinctures, it would be seen that in case of physical constants, sample No. 3 had high alcohol content and total solids in all the cases were different which shows an uneven pharmaceutical practice. The table II shows the presence of two flavones. The table III indicates only one alkaloid is present which accounts for acalyphine and has Rf. 0.40 to 0.42 in solvent butanol: ammonia (9.5:0.5) and Rf. 0.92 to 0.94 in chloroform: methanol (9:1). In one case (sample No. 3) alkaloid is found absent though the sample indicates the presence of two flavones.

It is felt that present study will contribute towards the statutory control of Acalypha Indica tincture.

REFERENCES

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3. Chopra R. N., Nayar S. L., Chopra I. C.: *Glossary of Indian Medicinal Plants,* Council of Scientific and Industrial Research, New Delhi, 1956.