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SHORT RESEARCH COMMUNICATION

TLC – SPECTROPHOTOMETRIC ANALYSIS OF STRYCHNINE AND BRUCINE FROM THE AYURVEDIC PILLS OF NUX VOMICA

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ABSTRACT: *Ayurvedic preparations claim on their label only the quantity of crude drugs and not the quantity of active ingredients present therein. So work was taken up to find the percentage of strychnine and brucine from Ayurvedic pills of Nux vomica powder by TLC spectrophotometric analysis, which study has not been reported earlier. However, the literature survey only revealed the following work.*

Literature Survey

A. Yanevaet al[1] separated strychnine from elixirs by TLC using ethyl alcohol, chloroform as mobile phase, C. Muller et al[2] developed a gas chromatographic method for estimation of strychnine M. Chiarotti et al[3] developed capillary gas chromatography to estimate strychnine. A. Lawrence et al[4] developed HPLC to estimate strychnine. Iskander et al[5] developed HPLC for brucine.

Experimental

The label claimed per pill as,
Nux Vomica powder _ _ _ _ _ 65mg.

Preparation of Test Solution

20 pills were weighted and powdered. Powder equivalent to the weight of 10 pills was weighted and transferred to a 250 ml beaker. To this 80ml of ammoniacal chloroform was added and stirred with the help of a magnetic stirrer for about 10 minutes. The chloroform layer was removed. The residue was washed with 5ml each of chloroform 3 – 4 times and added to original layer. The chloroform layer was evaporated to dryness. The residue so obtained was dissolved in 50ml of chloroform and transferred to a 100 ml volumetric flask. The volume was then made up to 100ml with chloroform.

Preparation of standard solution

7mg of drug strychnine and 8 mg of brucine were weighed accurately and dissolved in about 50ml of chloroform. This solution was then transferred into a 100 ml volumetric flask and the volume was adjusted with chloroform.

Separation and Quantitation of Alkaloids:

The chromoplates of 20 x 20 cm size were prepared with silica gel G^6 of thickness 500 and then activated at 105 – 110^o C for 1 hr. The dried plate was divided into three parts, the central one kept for blank while the

remaining for test and standard solutions each. Likewise three chromoplates were streaked using 0.25, 0.50 and 0.75ml of test and standard solution. The plates were streaked using 0.25, 0.50, and 0.75 ml of test and standard solution. The plates were developed with the mobile phase, Ethyl – acetate: Chloroform: Ammonia solution (40:8:2) in an unsaturated chamber and run to a distance of 13 cm. Visualization was done by spraying the plate with acidified iodoplatinate reagent. For the purpose of scrapping reference plate with the same conditions was prepared and visualized by above method and then knowing the Rf value, scrapping was done. The Rf values for strychnine and brucine were 0.72 and 0.92 respectively. The corresponding bands were scrapped out and then analyzed by Shimadzu – UV 240 / visible spectrophotometer at 251nm for strychnine and 267 nm for brucine in ethyl alcohol.

Recovery Experiment

To the powder equivalent to weight of 10 pills, 10mg each of strychnine and brucine were added. From this admixture a quantity of powder equivalent to weight of 10 pills was analyzed by the proposed method. The percentage recovery for both the alkaloids was obtained. Further statistical evaluation indicated the precision of the proposed method.

Drug	Content per pill by the proposed method (mg)	Among of drug added (mg)	Amount of drug recovered (mg)	Percentages recovery	Standard deviation	Coefficient of variation
Strychnine	0.7550	10	9.820	98.20	± 0.1979	2.6627
Brucine	0.8794	10	10.011	100.11	± 0.2052	2.3836

Results and conclusion

The samples of Nux Vomica powder from two different companies were analyzed by the proposed method for the content of Strychnine and brucine. The amount found is as follows:

Sample No.	Strychine %	Brucine %
I	1.2405	1.3886
II	1.1422	1.2232

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REFERENCES

1. A. Yaneva, Ty Nauchniozsled Khim. Farm Inst. 11, 20913 (1981), Thro; CA 96, 187365V (1982)

2. Glen muller, John warren, Lorry Hanks, J. Assoc. of Anal. Chem, 65 (4), 901 – 3 (1982).

3. M. Chiarotti, A. Carnarale, P. Gouianni, Forensic. Inst. 21 (3), 245. 51 (1983); Thro : CA, 99, 18095 (1983).

4. Alliot Lawrence, ryant Georgic, Gruth Pauls, J. Chromatogr, 232 (2) 440 – 2, (1982).

5. Iskander, M. Geroge, J. Stomborn, A. M. Satti, J. Liq. Chromatogr, 5 (8), 1481 – 923 (1982).

6. Stahal E., “Thin Layer” Chromatography – “A Laboratory Hand book”, Springerverlag, erlin, pg. 54, (1969)