



ORIGINAL RESEARCH ARTICLE

**A COMPARATIVE STUDY OF ALKALOIDS FROM ROOT EXTRACT OF MELILOTUS ALBA L. AND PSORALEA CORYLIFOLIA L.**

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**Abstract:** The present communication deals with a comparative study of alkaloids of root extract in two species i.e. *Melilotus alba* L. and *Psoralea corylifolia* L. Alkaloids are basic nitrogenous secondary plant products possessing heterocyclic compounds as their structural units with a pronounced physiological action. Alkaloids of *Melilotus alba* L. and *Psoralea corylifolia* L. may be useful for various diseases like piles, syphilis, gonorrhoea, urine flow, menstruation trouble and kidney disorder. Descending paper chromatography on whatman's paper-1 and three solvent system were used, viz. n-butyl acetate, acetic acid –n-butanol–water (85:40:15:22, solvent-1), n-butanol-acetic acid water (4:1:2 solvent-2) and ethanol–ammonia (4:1 solvent-3). Result revealed that six alkaloids viz N-dimethyle, tryptamine, Nb-oxide, hordenine, candicine, β-phenyle thylamine and hypaphorine were detected in both *Melilotus alba* L. and *Psoralea corylifolia* L.

**Key words:** *Melilotus alba* L. and *Psoralea corylifolia* L., n-butyl acetate, n-butanol, acetic acid, ammonia, ethanol.

**INTRODUCTION**

Fabaceae is one of the largest valuable families for agriculture and pharmacological point of view. A number of fabaceous plants are cultivated throughout the world. They are distributed in plains and hills. There are many therapeutic plants such as *Melilotus alba* L. and *Psoralea corylifolia* L. These plants are good source of medicine, proteins and remedies of various diseases.

Alkaloids are basic nitrogenous plant product processing nitrogen heterocyclic as their structural units with a pronounced physiological action. Pharmacological point of view the alkaloids of *Melilotus alba* L. and *Psoralea corylifolia* L. may be useful for different diseases like Piles, syphilis, gonorrhoea, urine flow, men's trouble and kidney disorder and affect significantly the physiological activities in humans and animals.

**MATERIALS AND METHODOLOGY**

The dried milled root tissues were treated with 10% acetic acid in ethanol and left for four hours.  $\text{NH}_4\text{OH}$  were added drop wise to extract mixture to precipitate the alkaloids which were washed with 1%  $\text{NH}_4\text{OH}$  and dissolved in chloroform.

The alkaloids were separated by chromatographic method using Whitman's paper no. 1 and three solvent systems viz.

- N-butylacetate-acetic acid-n butanol-water (85:40:15:22). solvent-I
- n-butanol-acetic acid-water (4:1:2). solvent-II.
- Ethanol-ammonia (4:1). solvent-III

The alkaloids were detected with the help of spray reagents (dragendroff, iodoplatinate and marquis) and also by measuring UV spectrum of the extracts samples (Smolenski *et al.*, 1972).

**Figure:** Photograph of plant species.



**Figure:** Grinding of root in motor and pestle and Chromatogram of alkaloids.

**RESULTS**

Two Fabaceae species *Melilotus alba* L. and *Psoralea corylifolia* L. were taken for comparative study of alkaloids. The content ranged from 0.28 to 0.95 of simple weight (roots). The staining reagent confirmed that the root extracts of both fabaceous species contains N-dimethyle tryptamine, Nb-oxide,

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hordenine and candicine Common alkaloids with specific color due to their relative basicity and differential solubility at different pH values. But in *Melilotus alba* L. one extra alkaloids  $\beta$ -phenyle thylamine and hypaphorine in *Psoralea corylifolia* L.

**Table:** Comparative observation of alkaloids in two Fabaceous species *Melilotus alba* L. and *Psoralea corylifolia* L.

S.No	Name of species	$\beta$ -phenyle thylamine	N-dimethyltryptamine	Hypaphorine	Nb-oxide	Hordenine	Candicine
1	<i>Melilotus alba</i> L.	+	+	-	+	+	+
2	<i>Psoralea corylifolia</i> L.	-	+	+	+	+	+

**Table 1:** Alkaloids of root extracts of *Melilotus alba* L. and *Psoralea corylifolia* L.

S.No	Sample weight	Solvent no	pH Level	Colour	Alkaloids
1	0.12	I	04	Medium light brown	N-dimethyltryptamine
2	0.15	III	04	Deep light brown	Nb-oxide
3	0.95	I	07	Orange	Hordenine
4	0.55	II	08	Pink	Candicine
5	0.28	I	04	Light brown	$\beta$ -phenyle thylamine
6	0.55	II	08	DeepPink	Hypaphorine

### CONCLUSION

From the above comparative finding the root extract of both fabaceous species *Melilotus alba* L. and *Psoralea corylifolia* L. contains N-dimethyle tryptamine, Nb-oxide, hordenine and candicine as common alkaloids with specific color due to their relative basicity and differential solubility at different pH values. But in *Melilotus alba* L. one extra alkaloids  $\beta$ -phenyle thylamine and in *Psoralea corylifolia* L. one extra alkaloid hypaphorine was recorded. These alkaloids are therapeutically important and hordenine in specific may be highly effective to increase urine flow.

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