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## PRELIMINARY PHYTOCHEMICAL SCREENING AND PHYSICO-CHEMICAL SCREENING OF ROOTS OF *PREMNA OBTUSIFOLIA* AND *OROXYLUM INDICUM*

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### ABSTRACT

“Dashmularisht” is a tonic made from different herbs. This tonic promotes vitality and strength. It improves milk production in women’s and very useful to regularize periods. It is Rejuvenator, Revitalizer, and Restorative tonic. It is beneficial in treatment of wide variety of disease such as gynecological disorder<sup>1,2</sup>, sexual disorder, urinary diseases, digestive disorder, respiratory disorder, anti - inflammatory<sup>3</sup>, and antibacterial activity<sup>4,5</sup>. It is “Ayurvedic Rasayana” preparation consisting of ten different roots. In this study the two species of Dashmularisht are taken for studies. These two species examined for physic-chemical parameters and preliminary phytochemical analysis.

### KEYWORDS

Dashmularisht, Tannins, Glycosides and Alkaloids.

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### INTRODUCTON

Phytochemical are biologically active, naturally occurring compounds in plants. These are protective and disease preventing. They are responsible for colour<sup>6</sup>, flavor and smell of plant<sup>7</sup>. These are chemicals formed during plants normal metabolic process and are also refered as secondary metabolites which have several several classes containing Alkaloid, flavonoid, coumarin, glycoside, gums, phenols, tannins, terpenes and triterpenoids<sup>8</sup>.

These compounds are valuable sources of food and medicine for prevention of illness, maintenance of human health, improves quality of human life<sup>9</sup>. Some of these phytochemicals are known as Phytotoxins because they are toxic to human

being<sup>10</sup>. Some are antinutrients that interfere with the absorption of nutrients<sup>11</sup>.

Now days many people face the problem of drug resistance due to which the particular drug not works properly. Therefore there is continuous need of new drugs which may be harmful to our internal organs such as heart, liver, kidney, spleen, Pancreas etc. so to overcome this problem the phytochemicals plays a best role for human beings<sup>12</sup>.

## MATERIAL AND METHODS

The roots of two plant species viz. *Premna obtusifolia* and *Oroxylum indicum* were selected. The roots were collected from Dashmul plantation plot of “Medicinal and Aromatic plants project MPKV, Rahuri. The plant materials were washed and shade dried. The dried plant materials were crushed to a coarse powder by mixer grinder.

### Extraction of Phytochemicals

Extraction is the process of efficiently dissolving and separating the desired constituents from the crude drug with the use of solvents<sup>13</sup>. The solvent selection depends on the type of secondary metabolites to be extracted. In present study methanol is used for extraction in Soxhlet extraction method. The extract is filter and concentrated<sup>14</sup>.

### Physico-chemical studies:

The parameters such as Loss on drying, acid insoluble matter, ash content, water soluble extractive, alcohol soluble extractive are studied and the results are given below

### Thin Layer Chromatography

The TLC analysis of plant material gives following Rf values

(Solvent System: - Toluene: Ethyl acetate: Formic acid)

## Preliminary Phytochemical Analysis:

The crude extracts were tested for different phytochemicals. The names and standard qualitative tests are given below<sup>15-18</sup>.

## RESULTS

The physico - chemical parameters of two plant species were carried out. The acid insoluble matter, ash content is higher in *O. indicum* while water soluble extractive and alcohol soluble extractive is higher in *P. obtusifolia*.

The thin layer chromatography of methanol extract is carried on silica plate. The solvent system used is Toluene: Ethyl acetate: Formic acid. The Retention factor (Rf values) is given in above table.

The preliminary phytochemical analysis of methanolic extract indicates Alkaloid, Tannins, Flavonoid, Fats; Carbohydrates are present in both plant species. Protein is present only in *O. indicum*. Saponins, Steroid, Triterpenoids, Phlobatannins, Resin are absent in both plant species.

## DISCUSSION

The plant under consisting of different phytoconstituents which are potential of being incorporated into food or food supplement as Nutraceutical<sup>19,20</sup> or into Pharmaceutical.

Terpenoids have unique antioxidant activity as they react with free radicals. Flavonoids are constituents of grapes<sup>21</sup>, wines<sup>22</sup> and medicinal plants, they reduces the risk of death by coronary heart disease<sup>23</sup>. Alkaloids show antimicrobial and anti-inflammatory agent and even antidibetic agent. Due to strong yellow colour, it is also used to dye wool, leather, wood etc. Colchicine alkaloid is used in the treatment of gout and arthritis. Colnine alkaloid useful as local analgesic<sup>13</sup>.

S.No	Physico-chemical parameters	<i>P. obtusifolia</i>	<i>O. indicum</i>
1	Loss on drying (%)	0.28	0.38
2	Acid insoluble matter (%)	1.55	1.75
3	Ash content (%)	3.62	4.33
4	Water soluble extractive (%)	12.65	9.64
5	Alcohol soluble extractive (%)	15.90	8.6

S.No	<i>P. obtusifolia</i>	<i>O. indicum</i>
1	0.06	0.38
2	0.13	0.61
3	0.24	0.74
4	0.43	0.84
5	0.54	0.92
6	0.68	----
7	0.78	----
8	0.88	----

S.No	Test	Observation	Inference
1	<b>Alkaloids</b> 1 ml extract + 0.5 ml Mayer's reagent (Potassium mercuric iodide solution)	Cream colour precipitate	Alkaloid present
2	<b>Tannins</b> 1 ml extract+ 0.5 ml FeCl <sub>3</sub>	Blue green coloured mixture	Tannins present
3	<b>Saponins: (Froth test)</b> 1 ml extract + 1ml distilled water shake well	Froth formation	Saponins present
4	<b>Flavonoids</b> 1 ml extract + few drops of sodium hydroxide solution	Intense yellow colour	Flavonoid present
5	<b>Steroid and Triterpenoids</b> (Salkowski test) 1 ml extract + chloroform + few drops of conc. Sulphuric acid, shake well and allowed to stand.	Red colour at lower layer	Steroid and triterpenoid present
6	<b>Proteins</b> 1 ml extract 0.2% Ninhydrin solution (Indane 1,2,3trione hydrate) boil well	A violet colour	Protein present
7	<b>Fats: ( Saponification test)</b> 1 ml extract + few drops of 0.5 N alcoholic potassium hydroxide + 2 drops of phenolphthalein, heated in water bath for 1 hr.	Formation of soap	Fats and fixed oil present
8	<b>Carbohydrates : (Fehling test)</b> Few drops of extract + equal volume of Fehling A and Fehling B reagent Fehling A – CuSo <sub>4</sub> in distilled water Fehling B – Potassium tartarate and NaOH in distilled water.	Brick red precipitate of cuprous oxide	Carbohydrate present
9	<b>Phlobatannins</b> 2 ml aq. Extract+ 2 ml of 1% HCl, boil	Red precipitate	Phlobatannin present
10	<b>Resin</b> Extract + 5 ml distilled water	Turbidity	Resin present

Both plant extract were subjected to above test and results obtained are tabulated as

S.No	Name of Phytochemical	<i>P. obtusifolia</i>	<i>O. indicum</i>
1	Alkaloid	√	√
2	Tannin	√	√
3	Saponin	×	×
4	Flavonoid	√	√
5	Steroid	×	×
6	Triterpenoid	×	×
7	Proteins	×	√
8	Fats	√	√
9	Carbohydrates	√	v
10	Phlobatannin	×	×
11	Resin	×	×

√ = presence × = absence

## CONCLUSION

The plant under consisting of different phytoconstituents which are potential of being incorporated into food or food supplement as Nutraceutical<sup>19,20</sup> or into Pharmaceutical. Terpenoids have unique antioxidant activity as they react with free radicals. Flavonoids are constituents of grapes<sup>21</sup>, wines<sup>22</sup> and medicinal plants, they reduces the risk of death by coronary heart disease<sup>23</sup>. Alkaloids show antimicrobial and anti-inflammatory agent and even antidibetic agent. Due to strong yellow colour, it is also used to dye wool, leather, wood etc. Colchicine alkaloid is used in the treatment of gout and arthritis. Colnine alkaloid useful as local analgesic<sup>13</sup>.

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## CONFLICT OF INTEREST

We declare that we have no conflict of interest.

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