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Extraction and Phytochemical Investigation of some Indian Medicinal Plants

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Abstract

Wealth Health Organization recognized approximately 80% of the Indian population depends on traditional Indian system of medicine for the treatment of various diseases. The increased populations still have believed and relying on herbs and the product prepared from these so called as herbal product prepared. In the present investigation T*riticum aestivum* Linn. (Wheat grass leaves), *Mentha piperita* Linn. (Leaves), *Moringa oleifera* Lam. (Leaves), *Punica granatum* Linn. (Fruits), *Eclipta alba* Linn. (Leaves) and *Murraya koenigii* (L.) Spr. (Leaves) were collected and extract was prepared using hydro-alcoholic solvent and further these extract was tested for qualitative phyto-chemical analysis to reveal the presence of active phyto-chemicals.

Keywords: Physicochemical, Herbs, Extract

Introduction

Over the last century, Phytochemical science and Phyto-pharmacological science established the numerous botanical products with various biological activities and health promoting benefits. Phyto-medicines, complex chemical mixture prepared from plants, have been used in medicine since ancient times and continue to have a widespread popular use. Herbs contain raw plant matter, such as leaves, flowers, fruits, seeds, stems, wood, bark, roots, rhizomes, or other parts of the plant that may be whole, divided, or powdered. Recently, The World Health Organization (WHO) has described as traditional medicine (including herbal medicinal products) as consisting of therapeutic practices that have existed, often for hundreds of years before, creation and dissemination of modern medicine and still in use today. The World Health Organization (WHO) has listed 21,000 plants, which are used for medicinal purposes around the world. Among these 2500 species are in India, out of which 150 species are used commercially on a fairly large scale. India is the largest producer of medicinal herbs and is called as botanical garden of the world. [1-2] The present work was aimed for extracting active phyto-chemical present in hrdo-alcoholic extract of T*riticum aestivum* Linn. (Wheat grass leaves), *Mentha piperita* Linn. (Leaves), *Moringa oleifera* Lam. (Leaves), *Punica granatum* Linn. (Fruits), *Eclipta alba* Linn. (Leaves) and *Murraya koenigii* (L.) Spr. (Leaves).

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Material and Methods

Collection and Authentication of Plant Material

T*riticum aestivum* Linn. (Wheat grass leaves) was grown in the medicinal garden of the department and was then collected. *Mentha piperita* Linn. (Leaves), *Moringa oleifera* Lam. (Leaves), *Punica granatum* Linn. (Fruits), *Eclipta alba* Linn. (Leaves) and *Murraya koenigii* (L.) Spr. (Leaves) were collected from local area of Jalone Dist. (U.P.). The collected plant material was identified and authenticated by Dr. S.N. Dwivedi, Retd. Prof. & Head, Department of Botany, Janata PG College, APS University, Rewa, (M.P.). Voucher Specimen Number: J/Bot./2020-TA/09; J/Bot./2020-MP/10; J/Bot./2020-MO/11; J/Bot./2020-PG/12; J/Bot./2020-EA/13 & J/Bot./2020- MK/14; dated 13/01/2020 was assigned for further reference.

Preparation of Extracts of Selected Plants

Plant material was dried and powdered and was screened with 40 mesh. The shade dried coarsely powdered plant material (250gms) were loaded in Soxhlet apparatus and was extracted with ethanol and water (9:10) until the extraction was completed. After completion of extraction, the solvent was removed by distillation. The extracts were dried using rotator evaporator. The residue was then stored in dessicator and percentage yield were determined. [3-4]

Phytochemical investigation of all extracts

The various standard parameters given in pharmacopeia will be used for identification, determination of purity and quality of these herbs. [4-6]

Test for Alkaloids

Dragendroff's test: Sample will treat with the Dragendroff's reagent (Potassium Bismuth Iodide solution). Formation of red precipitate representative of alkaloid involvement.

Mayer's test: Sample will be come to contact with the Mayer reagent (Potassium Mercuric Iodide solution) a yellow precipitate forms, that confirmed of alkaloids.

Hager's test: Hager's (saturated solution of picric acid) reagent will be used to treat sample. The existence of alkaloids confirms the yellow-colored precipitate development.

Test for Flavonoids

Alkaline reagent test: Mix few drops of sodim hydroxide solution with extracts. If the presence of flavonoids will be suggested by the development of an intense yellow colour that becomes colourless when diluted acid will applied.

Zinc hydrochloride test: If applied a mixture of zinc dust and concentrate hydrochloric acid to the test solution. After five minutes it shows the colour red.

Test for Saponins

Foam test: 2 ml of water add in 0.5 gm of extract. It identifies the existence of the saponins if the foam produced for 10 minutes.

Test for Steroids and triterpenoides

Salkowski's Test: The chloroform uses to test the sample and filtered. Concentrated Sulfuric acid drop wise add in this filtrates and shack it than allowed to stand. The emergence of the golden yellow colour suggests that triterpenes are present.

Libermann Burchard's test: The extracts will process and filtered with chloroform. The filtrate will handle, boiled and cooled, with a few drops of acetic anhydride than add concentrate sulfuric acid. The presence of phytosterols is suggested by a brown ring formation at the junction.

Test for Glycosides

Modified Borntrager's Test: The sample will be treated with a solution of ferric chloride and immersed for around 5 minutes in boiling water after that mixture cools down and extracts with equivalent amounts benzene. The benzene layer will isolate from the ammonia solution and treated with it. The presence of anthranol glycosides suggests the development of a pink-pink color in the ammonia layer.

Legal's Test: Test sample solution with pyridine and add alkaline sodium nitroprusside solution, blood red color is formed.

Test for Tannin and Phenols

Gelatin Test: A 1 percent gelatin solution containing sodium chloride will be added to the extract. The white rising action indicates the existence of tannins.

Ferric Chloride Test: 3-4 drops of ferric chloride solution will be used to treat the extracts. The development of a bluish black color suggests that phenols are present.

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Test for Volatile Oil

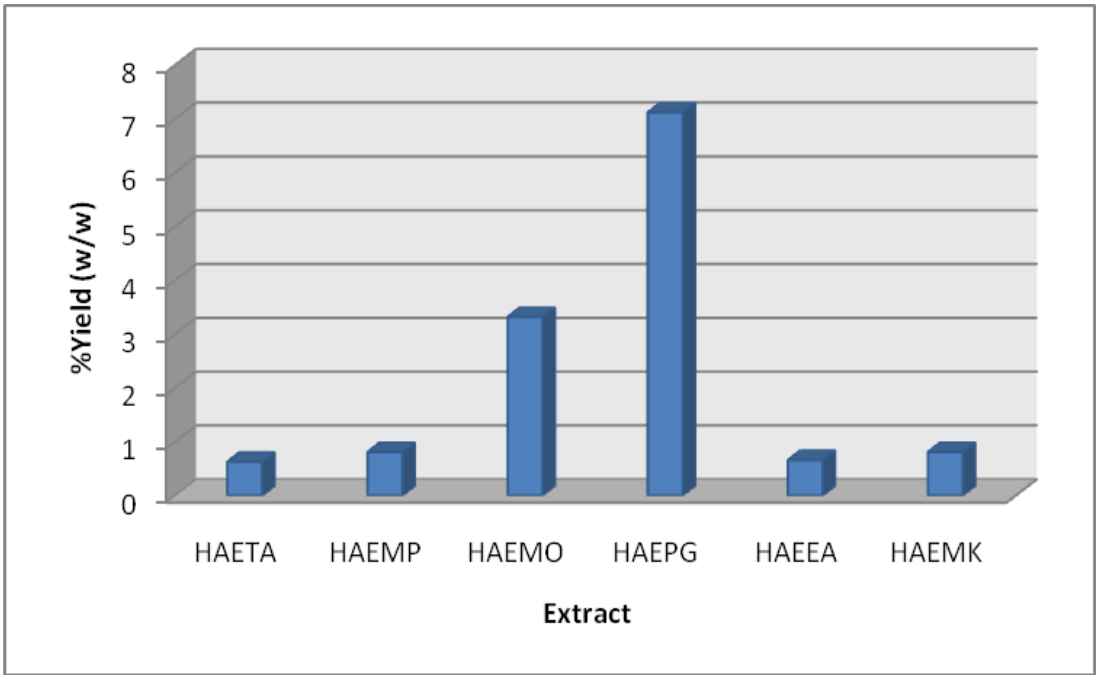
The sample will treat with Sudan III solution; red color indicates presence of volatile oil.

Results and Discussion

The dried plant part material of *Triticum aestivum* Linn. (Wheat grass leaves), *Mentha piperita* Linn. (Leaves), *Moringa oleifera* Lam. (Leaves), *Punica granatum* Linn. (Fruits), *Eclipta alba* Linn. (Leaves) and *Murraya koenigii* (L.) Spr. (Leaves) were subjected to soxhlet apparatus to extract the medicinally active phyto-chemicals using hydro-alcoholic extract. The extracts obtained were evaluated for pH, color and % yield (Table 1). The various extract obtained after extraction were subjected for phytochemical screening to determine the presence of various phytochemical present in the extracts (Table 2).

Table 1: Estimation of % yield of various extract of selected Indian herbs

S/No.	Extract	Parameters			
		Nature of Extract	Color	pH	% Yield (w/w)
1.	HAETA	Solid Powder	Light green	7.0	0.63
2.	HAEMP	Sticky solid	Dark green	7.1	0.81
3.	HAEMO	Solid Powder	Green black	7.1	3.32
4.	HAEPG	Stick solid	Reddish brown	7.0	7.12
5.	HAEEA	Solid Powder	Light green	7.1	0.66
6.	HAEMK	Solid Powder	Light green	7.2	0.81



Graph 1: % Yield of Extract

Table 3: Preliminary phytochemical screening extract of selected Indian herbs

Extract	Phytochemicals									
	Carbohydrates	Glycosides	Alkaloids	Protein & Amino acid	Tannins & Phenolic compounds	Flavonoids	Fixed oil and Fats	Steriods & Triterpenoids	Volatile Oil	Mucilage & Gums
HAETA	+	-	-	+	-	-	+	-	-	-
HAEMP	-	-	+	-	-	+	-	+	+	-
HAEMO	+	+	-	+	-	+	+	-	-	-
HAEPG	+	-	-	+	-	+	+	-	-	-
HAEEA	+	+	+	-	-	-	+	+	-	-
HAEMK	-	-	+	-	-	-	+	+	+	-

Abbr.: + = Present; - = Absent

Conclusion

The extract of selected plant material was revealed and % extractive value was reported. The present of active phyto-chemicals were determined and reported for *Triticum aestivum* Linn. (Wheat grass leaves), *Mentha piperita* Linn. (Leaves), *Moringa oleifera* Lam. (Leaves), *Punica granatum* Linn. (Fruits), *Eclipta alba* Linn. (Leaves) and *Murraya koenigii* (L.) Spr. (Leaves)

References

1. Seth S.D., Sharma B. Medicinal plants of India. Indian J. Med. Res. 2004;120:9–11.
2. Dwivedi S. (2015). Development of Standardization parameters of Guizotia abyssinica (L.f.) Cass. With special reference to its Pharmacological approaches, Ph.D Thesis, Suresh Gyan Vihar University, Jaipur, 33-39, 2015.
3. Tiwari p., Kumar B., Kaur M., Kaur G., Kaur H. (2011). Phytochemical screening and Extraction: A Review. International Pharmaceutica Sciencia, 1(1), 98.
4. Khandelwal K.R., Practical Pharmacognosy, Thirteenth edition 2005, Nirali Prakashan, Pune, 149-156.
5. Kokate, CK., Purohit AP, Gokhale S.B.(2008). Pharmacognosy (35ed. pp. 105-250). Pune: Nirali Prakashan.
6. Kokate CK. "Practical Pharmacognosy.; 4th ed. Vallabh Prakashan : 2005.18, 112-121.

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