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TO STUDY PHYTOCHEMICAL ANALYSIS OF ERANDA MOOLA (RICINUS *COMMUNIS*) -A REVIEW ARTICLE

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ABSTRACT

Plant is man's friend in survival, giving him food, fuel and medicine from the days beyond drawn of civilization. Plant continue to be a major source of medicine, as they have throughout human history. Over centuries, cultures around the world have learned how to use medicinal plants to fight illness and maintain health. The importance of natural product in the treatment of disease has been increased because of its natural source and comparatively lesser side effects as compared to the complexity in formulating chemical based drugs as well as uprising cost has led worldwide researchers to focus on the medicinal plant research. In the present article we are discussing regarding the phytochemical analysis of Eranda Moola (Ricinus communis).

Keywords : Phytochemical analysis, Eranda Moola etc

INTRODUCTION

The modernization of human being in this era of globalization is the matter of consideration. Today the modern communication tools, media, transportation etc. are so very developed that it has made distant places come closer. Along with the advantages of these tools there are numerous disadvantages for man himself. He is living such a life style, has adopted some food-habits etc. which are not suitable to his place of birth and living. All these issues lead to psychosomatic disorders and in this condition he has to consult the physician. These conditions can be avoided if the proper regimen like Dincharya, Ritucharya, Aahar vidhi etc. are followed appropriately which have been advocated by our great Sages. In Ayurveda the patient is treated with utmost care and attention with keeping in mind about the patient's Prakruti, Desha, Kala etc. Along with the geographical origin of patient, the origin of drug is also given due attention. It is also observed that the drugs which are collected from proper geographical area and in proper climate have full potency. So here a sincere attempt has been made to establish and prove the concept by assessing the inter-relation of geographical area and phyto-chemical analysis.

Ricinus communis Linn. (Euphorbiaceae) commonly known as Eranda in Ayurveda is a soft wooded small tree wide spread throughout tropics and warm temperate regions of the world. Ricinus communis Linn. (Euphorbiaceae) commonly known as Eranda in Ayurveda is a soft wooded small tree wide spread throughout tropics and warm temperate regions of the world. In the Indian system of medicine, the leaf, root, and seed oil of this plant have been used for the treatment of inflammation and liver disorders.[1,2] Its roots have also been highlighted for its Vrishya (aphrodisiac) and Vatahara actions by Acharya Charaka.[3] This plant also possesses hepatoprotective,[4,5] anti-diabetic,[6] laxative,[7] anti-fertility,[8] antiinflammatory and free radical scavenging activities.[9] In Ayurveda, the roots of Eranda are used in the treatment of Amavata (rheumatism), Sotha (inflammation), Katisula (backache), Udararoga (diseases of abdomen), Jwara (fever), etc.[2] Due to its high demand, roots of this plant collected from anywhere, that is why a comparative phytochemical study has been done. Verities of this plant root were taken from polluted, non polluted and domestic areas. Hence, to ensure quality of all varieties, phytochemical evaluations and heavy metal detection was undertaken.

Phytochemical study

1. Detection of Alkaloids- The detection of alkaloid was done by method which is proposed by Trease and Evans. 2 ml of oil and 1 ml of Dragondroff's reagent was taken in china dish. Appearance of reddish brown coloration detects the presence of alkaloid.

2. Detection of Cardiac glycosides- Detection of cardiac glycosides test is also called as KellerKiliani test. 2.5 ml of seed oil was treated with 1 ml glacial acetic acid in a beaker. Few drops of ferric chloride were added in beaker. After that 1 ml of concentrated sulphuric acid was added, this gave a brown ring at interface. This indicates the presence of cardiac glycosides.

3. Detection of Tannins- This method was put forth by Edeoga. According to this methodology, about 1ml of oil was boiled in 20 ml of distilled water, filtration was done after boiling and then few drops of 0.1% freshly prepared ferric chloride was added in filtrate. A bluish black or brownish black color indicates the presence of tannins.

4. Detection of Flavonoids- Appearance of yellow coloration indicates presence of flavonoids in each method. A portion of filtrate was taken in beaker and then few drops of aluminum chloride were added. A yellow color detects flavonoids in sample.

5. Detection of Steroids- 2 ml of acetic anhydride was added in 1ml of seed oil in beaker. 2 ml of concentrated sulphuric acid was added in it. The color changing from violet to blue or green detects presence of steroids.

6. Detection of Saponins- This method was also given by Edeoga. According to this method 2ml of Ricinus communis oil was boiled in 20 ml distilled water in water bath and filtered, after this, the 5 ml distilled water was added in filtrate and shaken for stable froth. The frothing was mixed with three drops of olive oil, froth formation indicate the presence of saponins.

7. Detection of Anthraquinone- This detection test was given by Trease and Evans. Red, pink and violet color shows the presence of anthraquinone. According to this method, the seed oil was taken in china dish and 0.5 ml of ether was mixed well in this sample, then water was added and shaken with glass rod to detect anthraquinone.

8. Detection of Reducing Sugar- Detection of reducing sugar is also called as Fehling test proposed by Khan et al. According to this method the appearance of red or violet coloration indicates the presence of reducing sugar. Seed oil (1 ml) and 5 ml of distilled water were taken in beaker and a few drops of Fehling solution was added to it and heating is required for some time to detect presence or absence of reducing sugar.

9. Detection of Proteins- It is also called as Million's test. As per this method the mix 3ml. of T.S. with 5ml. million's reagent. White precipitation appears. Warm the precipitation turns brick red or the precipitate dissolves giving red colored solution.

10. Detection of Oil- The drug is kept in between filter paper and pressed. The filter paper gets permanently stained with oil but does not get stained permanently in case of volatile oil.

Table 1: PHYTOCHEMICAL PROFILES OF ERANDA MOOLA

Tests	Procedure	Results
Test for Calcium	With solution of ammonium carbonate gives white PPT. which is insoluble in ammonium chloride solution.	-
Test for Magnesium	Gives white ppt. with ammonium carbonate solution but not with ammonium chloride solution.	-
Test for Sodium	Flame test: Prepare thick paste of ash of drug with conc. HCl. Take paste on platinum wire loop, introduce in Bunsen flame. Golden yellow flame is observed.	+
Test for Potassium	Flame Test: Gives violet color to the flame.	-
Test for Iron	TO 5ml. test solution, add few drops 5% ammonium thiocyanate (or 5% potassium thiocyanate). solution turns blood red.	+
Test for Sulphate	With Lead Acetate reagent gives white ppt. soluble in NaOH	+
Test for Phosphate	To 5ml test solution prepared in HNO3, add few drops ammonium molybdate solution. Heat 10 min. coo, Yellow crystalline ppt of ammonium phosphomolybdate is observed.	-
Test for Chloride	To about 5 to7 ml. filtrate, add 3 to 5 ml lead acetate solution. White precipitate soluble in hot water is observed.	+
Test for Carbonate	With solution of magnesium sulphate, white ppt is formed.	-
Test for Nitrates	With solution of ferrous sulphate yield no brown color but if sulphuric acid is added (slow from the side of the test tube,) a brown color is produced at the junction of two liquids.	-

Discussion:

The drug Eranda is mentioned in the Vedas and Puranas like Shankhayan Aranyak, Agni Purana etc. It is widely mentioned in the Ayurvedic classical text like Charaka Samhita, Sushruta Samhita, Ashtanga Hradaya and Nighantus. In Charaka Samhita it is classified under various Mahakashayas, ShakaVarga and BastiDravya. In Sushruta Samhita also it is classified under Ganas like VidrgandadiGana, TailaVarga. Even Acharya Vagbhata also mentioned this drug under TailaVarga, VidaryadiVarga etc. In Bhavprakash Nighantu, Shodhala Nighantu and Dhanwantari Nighantu is mentioned under Guduchyadi Varga, where as Madanpal Nighantu mentioned it under Abhayadi Varga, Kaiydeva Nighantu in Aushadhi Varga, Raj Nighantu in Shalmalyadi Varga and Priya Nighantu in Shatpushpadi Varga. In Samhitas there is no description available about the bheda of Eranda but in Nighantus there are different varieties of Erand is mention. Dhanwantari Nighantu, Kaiyadeva Nighantu, Shodhala Nighantu and Madanapal Nighantu mentioned two varieties of Eranda and Raj Nighantu mentioned three verities where as

Bhavpraksha Nighantu mentioned four verities of Eranda. The Nighantus has mentioned a number of synonyms for Eranda. Eranda is having a synonym Urubuka which is according to authors might refer to RaktaEranda as per Acharya Charaka. All text including Nighantus mentioned Madhura Rasa of Eranda excluding Dhanwanatari Nighantu and Raj Nighantu. Almost all the text mentioned Eranda as UshnaViryaDravya. Eranda is considered as Vata-Hara by all the authors along with Pitta-Hara and according to some it is also Kapha-Hara. Due to its Vata Hara Guna, it is indicated in Vata-Vyadhis like AmaVata, Pakshaghata, Kati Shula, Shirah Shula, VatajaGulma etc. Formulation- Eranda is used in enormous number of formulation which are mentioned in different classical texts. In most of the formulations seed oil and roots are used because the main constituent is present in the seed oil and root. In recent times there are so many researches have been done on Ricinus communis and it is found that Eranda is having Analgesic, Anti-tumor, Antioxidant, Hepato-protective activities

In this study qualitative phytochemical analysis was done to detect and compare the chemical constituents of TD and its modified dosage forms. Most of the phytochemicals including saponins, alkaloids, flavonoids, phenols, terpenoids, tannins, and steroids were present in all four types of preparationsHowever, saponins, alkaloids, flavonoids, terpenoids, and steroids were more prominent in both traditional TD and FDF-TD than the SDF-TD and GSF-TD. Plant secondary metabolites such as phenols, flavonoids, tannins, and saponins are responsible for many activities including antioxidants, anti-inflammatory, antibacterial, antiasthmatic, immunomodulatory actions etc. Prolonged administration of saponin from *the* plant has been reported to exhibit antihistaminic and antiallergic activity. is one of the ingredients in TD and high content of saponins was found in both TD and FDF-TD. This factor helps to prove the effectiveness of TD and FDF-TD in the treatment of allergic rhinitis which is characterized by nasal congestion, watery nasal discharge, itching of the nose, and sneezing [20]. Therefore, the above properties of the drug could overcome the symptoms of allergic rhinitis. Further this is the first attempt taking place to screen possible phytochemicals present in TD.

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