

Phytochemical analysis of Methanolic dye extracts of some medicinal plants

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ABSTRACT

The present study deals with the phytochemical studies of different medicinal plants like *Butea monosperma* of the family *Fabaceae*, *Rubia cordifolia* of the family *Rubiaceae* and *Alkanna tinctoria* of the family *Boraginaceae*. 80% Methanolic extracts have been screened for qualitative determination of different secondary metabolites like starch, alkaloids, flavonoids, tannins, reducing sugar, amino acids and lignin by specific chemical colour reaction tests.

Key Words : Phytochemical study, Medicinal plants, Methanolic extract, Secondary metabolites

INTRODUCTION

All ailments of mankind have been cured using a stored house of remedies provided by nature. Use of plants as a source of medicine has been inherited from the onset of human civilization and is an important component of the healthcare system. Phytochemicals found in plants, are non-nutritive bioactive compounds. Recent researches have revealed that phytochemicals can protect humans against various diseases and are also responsible for colour of different plant parts like fruits, flowers, leaves bark and roots. In recent years, chemical analysis and biological assays have begun to play an important role in ethnological studies (Jana *et al.*, 2009). In several cases, such analyses have led to the discovery of novel bioactive phytochemicals. The use of medicinal plants has been inherited from the onset of human civilization and is an important component of the health care system.

This investigator has tried to study the phytochemicals of some medicinal plants. Plants such as *Butea monosperma*, is used to remove body toxins, eye related diseases and many more (Pundlik *et al.*, 2015 and Das *et al.*, 2016), *Rubia cordifolia* is used to regulate blood pressure, blood vessel constriction, helps protect from blood clot formation and reduce uric acid (Singh *et al.*, 2014) whereas *Alkanna tinctoria* is used in the treatment of skin wounds, diseases and possessed antimicrobial activity (Hasmda *et al.*, 2014). The aim of this paper is to evaluate the preliminary phytochemical characters such as determination of Pharma cognostic principals of some medicinal plants of different families.

METHODOLOGY

All the medicinal plants (*Butea monosperma*, *Rubia cordifolia* and *Alkanna tinctoria*) were collected from the local market of Udaipur, Rajasthan. The selected plant species have been identified very carefully with the help of different floras (Das *et al.*, 2016; Hasmda *et al.*, 2014; Paria, 2005).

All the selected medicinal plants were cleaned carefully and dried in shade, grinded and powdered mechanically. Finally, the grinded powder of each plant was extracted with 80% methanolic solution and those extracts were used for different phytochemical groups. The screening of phytochemical was carried out to assess the qualitative chemical compositions of crude extract using commonly employed precipitation and colouration reaction to identify the major natural chemical groups such as starch, alkaloids, flavonoids, tannins, reducing sugars, amino acids and lignins. General reactions in these analyses revealed the presence or absence of these compounds in crude extract tested. Phytochemical analysis of different dye extracts was done using standard procedure given by Sawant *et al.* (2013); Zachariah *et al.* (2014); Pundlik *et al.* (2015)).

RESULTS AND DISCUSSION

The screening of preliminary phytochemicals was carried out on methanolic extracts of petals of *Butea monosperma* flower, the roots of *Rubia cordifolia* and roots of *Alkanna tinctoria*, which revealed the presence of phytoconstituents such as Alkaloids, Glycosides, Carbohydrates, Flavonoids, Terpenoids, Tannins, Phenolic compounds, Flavonoids, and Saponins (Table 1). Tannins are known to have high medicinal value and found to be present in all the medicinal plants. Plant tannin has been recognized for their pharmacological properties and is known to make trees and shrubs a difficult meal for many caterpillars. They perform many functions like antimicrobial, antiviral, antibacterial, anti-tumor. Flavonoids are the substances which can give the colour to the substrate. Saponins carry out medicinal functions which include serving as an expectorant and emulsifying agents and having antifungal and antimicrobial properties. Alkaloids are used in nicotine sulfate, a by-product of the tobacco industry, as a very potent insecticide and have a physiological effect. Anthraquinones are considered to be associated with innate resistance of a plant to diseases and often shows antimicrobial activity. Glycoside widely used in herbal medication. Leaves, stem bark, and roots were rich in steroid and they are routinely used in medicine because of their profound biological activities. Terpenoids are used to inhibit the germination and development of competing plants and in scent in flowers or fruits, attracts insects to distribute pollen or seeds as mentioned by

Table 1 : Phytochemical screening of *Butea monosperma* dye extract

Constituents	<i>Butea monosperma</i>	<i>Rubia cordifolia</i>	<i>Eucalyptus globulosa</i>
Alkaloids	+	+	-
Steroids	-	-	+
Glycosides	+	+	+
Carbohydrates	+	-	-
Flavonoids	+	+	-
Saponins	+	-	+
Tannins	+	+	+
Phenolic Compounds	+	+	+
Anthraquinone	-	-	-
Terpenoids	+	+	-

Zachariah *et al.* (2014) and Chairman *et al.* (2015).

In the present findings, the methanolic extract of *Rubia cordifolia* reveals the presence of Alkaloids, Glycosides, Flavanoids, Tannins, Phenolic compounds and Terpenoids whereas Steroids, Anthraquinone, carbohydrates and saponins are absent. Steroids, Tannins, and Phenolic compounds were found with methanolic extract of *Alkanna tinctoria* extract whereas methanolic extract of *Butea monosperma* obtained Alkaloids, Glycosides, Carbohydrates, Flavonoids, Terpenoids, Tannins, Phenolic compounds, Flavonoids, and Saponins.

Discussion and Conclusion :

The presence of phytochemicals such as glycosides, flavonoid, phenolic compounds and tannins in the methanolic extracts of all the three selected plants, confirms their medicinal properties. Biochemical assays and chemical analysis are very important aspects in pharmacognostic evaluation of medicinal plants (Amabye *et al.*, 2016). The scientific work of Zachariah *et al.*, 2014; Chairman *et al.*, 2015; Chandrashekar *et al.*, 2012; Anand *et al.*, 2011; Kalaiaarasan and John, 2010; Patel *et al.*, 2010 also testified that the important phytochemical groups *i.e.* Alkaloids, steroids, flavonoid, phenolic compounds, anthraquinones, and tannins present in various plant extracts are responsible for their inherent medicinal properties. Therefore, it can be concluded from the findings that these phytochemicals are also responsible for the good antimicrobial activities and colouring of the textiles.

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