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QUALITATIVE PHYTOCHEMICAL ANALYSIS OF *CASSIA SOPHERA*(LINN.) ON AQUA –ETHANOL SEED EXTRACT

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ABSTRACT

Medicinal plants are source of an unlimited chemical component with high drug potential value which makes these plant useful as a source of Biomedicine. The common name of *Cassia sophera* is Senna in English. which serves as a potential source for contribution to the modern system of herbal medicine. The plant reported to work as anti-diabetic, anti-inflammatory, anti-toxicant, anti-asthmatic activity, anti-convulsant, analgesic and hepatoprotective activity. *C. sophera* seed extract has been of determining interest in phytochemical activity due to their medicinal values. The result shows preliminary phytochemical activity: tannins, terpenes, carbohydrate, protein, saponins, alkaloids, flavonoids, phenol and glycosides.It is an important and rich source of secondary metabolites. The present study investigatesthe phytochemical analysis of aqua-ethanolic seed extract of *C. sophera* (Linn.).

KEYWORDS: Analgesic, Anti-Convulsant, Anti-Toxicant, *Cassia sophera*, Hepatoprotective, Saponin.

INTRODUCTION

All drug estimates are based on phytochemical and pharmacological approachesthat produce the drug discovery referred to as the screening of natural products (Foye *et al*.,2008). Each part of the plant will consist of active components such as bark, leaves, flowers, roots, fruit sand seeds (Gordon and David,2001). Plants such as *triticum aestivum* (Linn) use for the treatment of antidiabetic (Dewalkar *et al*., 2014), increase immune response (Dewalkar *et al*.,2014) and alloxon induce diabetic rat depends on dose of alloxon and age of rat (Dewalkar and Masram, 2018). The plants synthesize many non-nutritive phytochemicals for various functions and these have been reported to be beneficial as they control various medicinal activities in humans (Khighorn, 2011). These phytochemicals are primary or secondary metabolites with changing biological activities and they are commonly the main active principles present in plants (Doughari, 2011).

Primary metabolites are essential for the maintenance of normal plant life, while secondary metabolites including tannins, saponins, flavonoids, alkaloids, terpenoids, plantsynthesized glycosides are non-nutritious for other purposes (Kinghorn *et al*., 2011; Khan *et al*., 2011). The World Health Organisation supports the use of traditional medicine if proven effective and safe (WHO, 1985).

Senna, *C. sophera* (Linn.) belongs to Family Caesalpiniaceae and is a medicinal plant. It is found in large amount in the Maharashtra state, India. *C. sophera* locally called Rantakada in Marathi. It is found throughout India, Bangladesh and other tropical countries (Mondal*et al*., 2012; Ahamad *et al*., 2005). The chemical composition of the seed of *C. sophera* (Linn.) reported the presence of ascorbic acid, β-sitosterol and dehydroascorbic acid (Malhotra and Mishra, 1982).

In ethnobotanical literature, the leaves of *C. sophera* are mentioned to be used for their anti-rheumatic, anti-inflammatory and purgative property, as an expectorant for colds, bronchitis, cough, asthma and in liver disorders (Ahamad *et al*.,. 2005). Earlier studies have investigated on the pharmacological activities of the seeds of *C. sophera* including antidiabetic (Kumar and Muller, 1999), analgesic and anticonvulsant (Khan *et al*., 2002), inhibition of lipid peroxidation (Razvi *et al*., 1980), fungicidal (Ghani, 2003) and herbicidal effects (Maji *et al*., 2005). Ethnobotanical literature of *C. sophera* indicated effective in the treatment of asthma, cough, acute bronchitis, pityriasis, diabetes and convulsions of children (Kirtikar

and Basu, 2000; Rahman *et al.*, 2009) and hepatoprotective activity (Mondal *et al*., 2012). The present study endevour to find out the qualitative analysis from the aqua-ethanol seed extract of *C. sophera* (Linn.).

MATERIALS AND METHODS:

Selection of plant material: The plant material (seed) of *C. sophera* was collected from hygiene places from Paradshinga village of Nagpur district, Maharashtra. The global position system (GPS) coordinates of plant collection site noted down [21°19'37.848"N 078°31'12.492"E]. The plant material washed thoroughly 2-3 times with running water or sterilize with distilled water.Then the plant parts were shade dried and coarsely powdered separately and store in a well-closed bottle for further analysis in a laboratory.

Authentification of plant material: The plant was authenticated at the department of Botany, Mahatma Jyotibha Fule Educational Campus, RTM Nagpur University Nagpur, India. The specimen was labelled and reference number 10196 was given.

Extraction of plant material: The fresh plant material was washed with running water and shade dried. The seed was crushed to powder. These coarse powdered were then subjected to sussesecive extraction in 200 ml of aqua-ethanol solvent by using soxhlet apparatus. The collected extract was stored and then used for further analysis.

OBSERVATION:

Fig.1: *Cassia sophera* (Linn.).

Fig.2: Seed of *C. sophera.*

Fig. 3 Extract of *C. sophera* seed

Preliminary phytochemical analysis:

The screening performed by the using methods mentioned by (Harborn, 1973; Tyler, 1998;Khandelwar, 2001).

Plant constituent seed extract	Presence/Absence	Name of tests
1) Carbohydrates	**-ve**	**Fehling's Test**
2) Proteins	**-ve**	**Biuret test**
3) Tannins	**+ve**	**Ferric chloride test**
4) Saponin	**+ve**	**Foam tes**
5) Terpenes	**+ve**	**Libermann Burchards test, Salkowski test**
6)Alkaloids	**+ve**	**Wagner's test**
7) Flavonoids	**+ve**	**Lead acetate test**
8) Phenols	**+ve**	**Lead acetate test**
9) Glycosides	**+ve**	**Glycoside test**

(+) present (-) not detected

Tabel:1 Qualitative analysis of *C. sophera* seed extract with aqua-ethanol solvent.

The chemical tests for various phytoconstituents in the aqua-ethanolic extract of seed of *C. sophera* were carried out are Fehling's test, Biuret test, Ferric chloride test, Foam test, Libermann Burchards test, Salkowski test, Wagner's test, Lead acetate test, Glycoside test for carbohydrate, protien, tannins, saponin, terpenes, alkaloids, flavonoids, phenol and glycosides respectively as per mentioned by (Harborn, 1973; Tyler, 1998; Khandelwar, 2001).

During **Fehling's test**, colour of seed extract fails to changes from brownish to dark indicating absence of carbohydrate in seed extract. In **Biuret test** also no change observe in colour of seed extract confirming absence of protein in *C. sophera* seed extract. In **Ferric chloride test**, colour of seed extract changes from brownish to dark brown colour an indicating presence of tannins in seed extract. In **Foam test**, colour of seed extract changes from brownish to honeycomb-like colour indicating the presence of saponin in seed extract. In **Libermann Burchards test**, brown ring appeared between, upper and lower layer, upper layer turns deep red showing presence of terpenes in seed extract.

During **Salkowski test**, lower layer of seed extract changes from brown to yellow indicating presence of triterpenoids in seed extract. In **Wagner's test**, colour of seed extract changes from brownish to reddish-brown precipitate. Reddish-brown precipitate confirm that presence of alkaloids in seed extract. In **Lead acetate test,** colour of seed extract changes from brownish to yellow precipitate. Yellow precipate confirm the presence of flavonoids andphenols in seed extract. In **Glycoside test,** colour of

seed extract changes from brownish to yellow colour indicating the presence of glycosides in seed extract.(fig.4)

Lead acetatetest **Fehling's test** **LibermannBurchards test** **Foam test** **Wanger's test**

Ferric chloride test **Salkowaski test** **Glycosides test** **Lead acetate**

Fig. 4 Result showing phytochemical screeing of *Cassia sophera* aqua-ethanol seed extract.

DISCUSSION:

Nowadays, plants are considered a better source for new medicines to be discovered than those of microbial and animal origin (Shanks and Morgan, 1999).
The plant's phytoconstituents have medicinal properties.Many researchers reported the biological properties of secondary metabolites. The saponins are used for hyperglycemia, hypercholesterolemia, antioxidant, anticancer, weight loss and anti-inflammatory activity (Murugan and Mohan, 2014). Tannins are astringent and are used for dysentery and diarrhea (Dharmananda, 2003) and used on antimicrobial, antioxidants and anti-carcinogenic agents (Lai *et al*., 2010). The secondary metabolites now in *C.sophera* (Linn.) prove the presence of biologically active compounds.

CONCLUSION:

In the present study conclude that the aqua-ethanol seed extract of *Cassia sophera* (Linn.) have the potential to act as a source of helpful drugs because of the presence of various phytochemical constituents such as proteins, alkaloids, terpenoids, saponin, carbohydrates, tannins, flavonoids, phenol and glycosides. Presence of these phytoconstituents that are a crucial role for various diseases.

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