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IN VITRO PHYTOCHEMICAL ESTIMATION USING AQUEOUS EXTRACT OF TERMINALIA *CHEBULA* SEEDS, SENNA AURICULATA FLOWERS AND SYZYGIUM CUMINI SEEDS

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ABSTRACT

The current work aimed to study the phytochemical analysis of three Indigenous medicinal plants *Terminalia chebula , Syzygiumcumini* & *sennaauriculata* from the prepared extracts. The following plant extracts were prepared using Soxhlet extraction. Furthermore, phytochemical activity of the ethanolic extracts of *Terminalia chebula, Syzygiumcumini* & *sennaauriculata* were tested. The phytochemical assay screening of the extracted species of the following Indian medicinal plant extracts showed a greater degree of phytochemical attributes exhibited great biological potential, which could be considered for future uses in pharmaceuticals, food.

KEYWORDS: *Terminalia chebula , Syzygiumcumini*, *Sennaauriculata,* phenolic content

INTRODUCTION

. Antioxidants assuage oxidative stress in cells and thereby help in the prevention and treatment of many diseases of humans (Prabhakar et al., 2013). The exploration of medicinal plants as potent source of antioxidants has kindled much attention in the recent years (kamalambigeswari R and Jeyanthi Rebecca L, 2016). Studies have also shown that The polyphenolic activity in plants is related to the antioxidant nature it promote the hypoglycemic activity on consumption (Mootoosamy and Mahomoodally, 2014). Medicinal plants are said to be the natural sources for many diseases that are devoid of side effects

(Gurudeeban et al., 2012). Alphaamylase and alpha-glucosidase inhibitors are employed for inventing new drugs for treating many diseases like Diabetes (Kathirvel et al., 2012; Gayathri and Jeyanthi, 2013). On adventing the amylase inhibitors importance in animal and human nutrition, full-fledged research has been carried out for deciphering their biological characeristics (Rao and Rehman, 2012). Antidiabetic effect of medicinal plants can be studied in vitro using various test systems like testing inhibitory activity of alpha-amylase, alpha-glucosidase, inhibition of intestinal glucose uptake using isolated diaphragm, secretion of insulin from beta-cells of pancreas using various cell-lines and in vivo using animal models.

Materials and Methods:

Collection And Extraction

Fresh plants of the above-mentioned species were collected from Irula Tribal Women's Welfare Society in Chengalpattu, Tamilnadu. The leaves were plucked individually from, washed and dried for 5 to 6 days. The dried samples were finely powdered using mortar and pestle. The powdered samples were subjected to solvent extraction using soxhlet reaction technique. An exact weight of 10 gram was packed in the blotting paper and solvent was added in soxhlet extractor of about 100 ml of the solvent and was subjected to undergo a series of condensation cycle until the color of the solvent mixture changes. The reduced extraction mixture was added to the petriplates and to air dry for 2-3days depending upon the nature of the solvent extract.

Preparation and selection of extract:

Three extracts such as Ethanol extract, Methanol extract and Acetone extract were selected for the present study.

Test for Proteins

Test sample was heated with two ml of 0.2% Ninhydrin solution, violet colour appeared suggesting the occurence of amino acids and proteins.

Test for Carbohydrates

MOLISCH'S TEST

Molisch reagent was added with crude extract and mixture was shaken thoroughly. Appearance of violet ring will indicate the presence of sugars

Test for Flavonoids

The test sample was mixed with two ml of 2% solution of sodium hydroxide. (Stankovic et al., 2011). Yellow color occured which turned colourless while little drops of diluted acid was added.

Test for Saponins

The test sample was added with five ml of dis. H_2O in a test tube and it was accelerated heavily. The foam occurence was said to be the indication of saponins

Test for Glycoside skeller-Kilani test

The test sample was mixed with two ml of CH_3COOH and few drops of 2% solution of $FeCl_3$, followed by the addition of few drops of sulphuric acid. A ring in brown color at their phase indicated the occurrence of glycosides.

Test for Steroid

Steroid test was carried out with Crude extract by adding two ml of $CHCl_3$ with conc. H_2SO_4. Formation of red color shows the indication of steroid.

Test for Alkaloids

The test sample was added with 2ml of Hydrocoholoric acid (1%) and gently heated. The mixture was then added with Mayer's and Wagner's reagents. Turbidity shows the positivity of alkaloids

Results and Discussion

Solvent Extraction of *Terminaliachebula, Syzygiumcumini , Senna auriculata*

Aqueous extracts of plant were prepared using hot soxhlet extraction from the plant sp. Fig.1 and Fig.2 given below indicates the collection of extract from different plant sp., *Terminalia chebula , Syzygiumcumini, sennaauriculata*

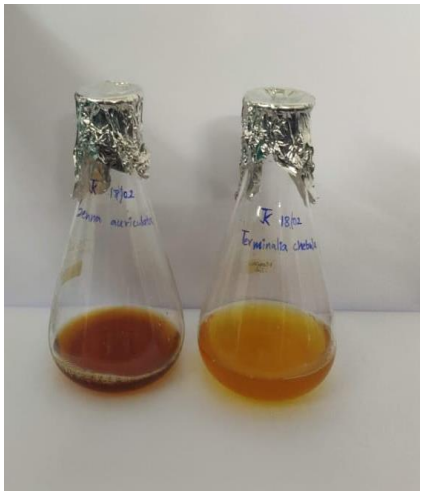


Fig. 1 Aqueous extract of plant sp. *Terminalia chebula & sennaauriculata*

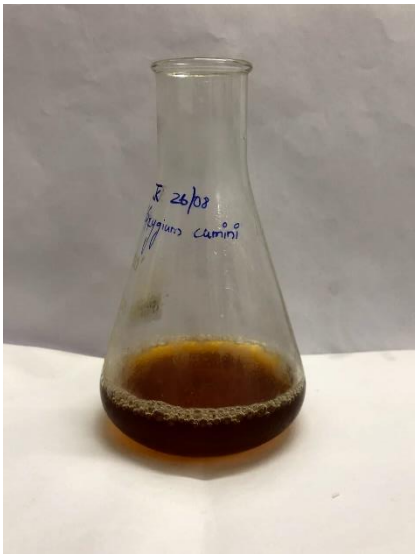


Fig.2 Aqueous extract of plant sp *syzygiumcumini*

Phytochemical Analysis of *Terminalia chebula ,Syzygiumcumini, sennaauriculata*

The phytochemicals test performed on extracts of *Terminalia chebula ,Senna auriculata , syzygiumcumini. (*Aggarwal et al., 2011) Table 1 provides the presence or absence of different metabolites from the extracts of Ethanol.

Table 1: **Analysis of Phytonutrients of *Terminalia chebula ,Syzygiumcumini, sennaauriculata***

Phytochemical test	***Terminalia chebula***	***sennaauriculata***	***Syzygiumcumini,***
Test for Alkaloid Wagnertest	+	+	+
Test for Carbohydrates Fehling'stest	-	+	+
Test for Glycosides Bornrager's Test	-	-	-
Test for Saponins Foam Test	+	-	-
Test for Protein Biuret Test	-	-	-
Aminoacids Ninhydrintest	-	-	-
Tannins FerricChloride test	+	+	+
Test for Flavonoids	+	-	+

Lead Acetate Test			
Test for Terpenoids a. Salkowski Test	-	+	+
Test for Steroids and Phytosteroids	-	-	-

Key: **+ Present; -Absent**

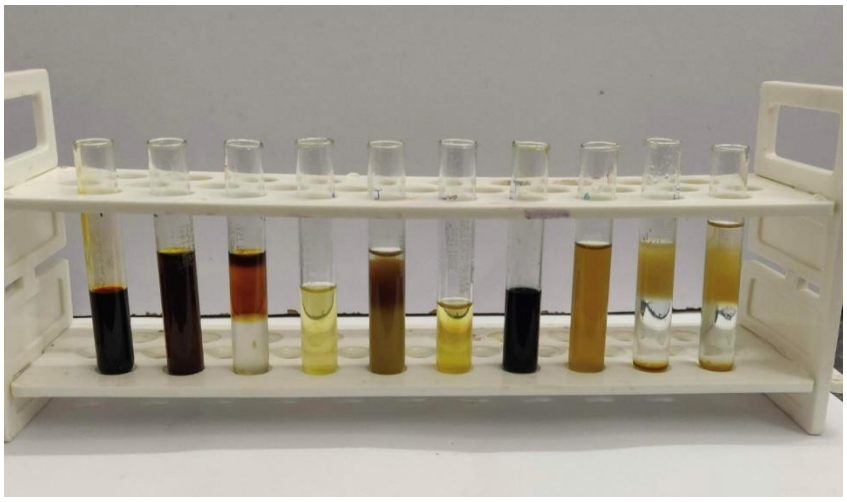


Fig 3: Qualitative phytochemical analysis of *Terminalia chebula*

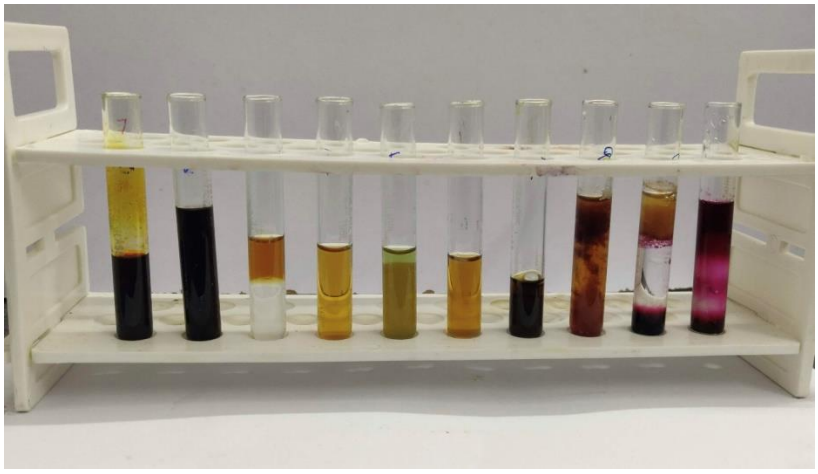


Fig 4: Qualitative phytochemical analysis of *Senna auriculata*

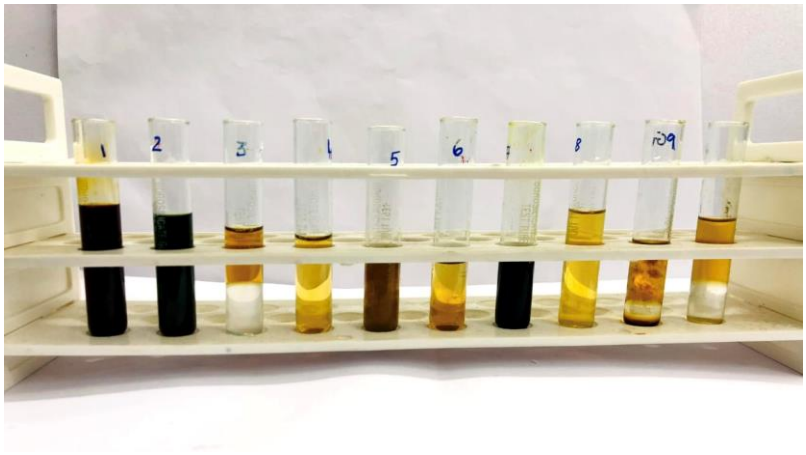


Fig 5: Qualitative phytochemical analysis of *Syzygiumcumini*

Quantitative phytochemical analysis for *Terminalia Chebula* , *Senna Auriculata* , *Syzygium Cumini.*

The total amount of phenol from the wild plant sp. extracts were estimated by Folin-Cuocalten reagent method. Fig 6 indicates the sample of *syzygiumcumini*. The absorbance for the standard was read at 630 nm (Stankovic, M. S et al., 2011). Absorbance showed that the highest phenols were in the ethanolic extracts of - 0.778 mg/g and the lowest phenols in the case of aqueous extract of- 0.321 mg/g, as presented in Table 2

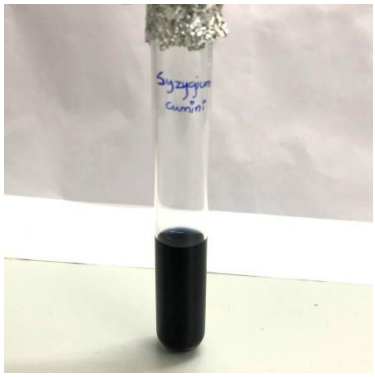
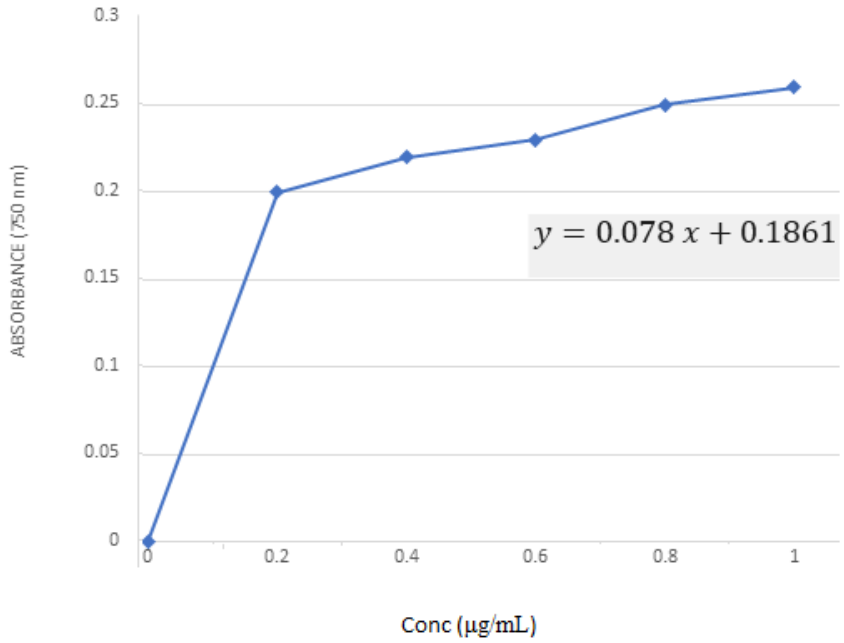


Fig 6. Quantitative phytochemical analysis of *syzygiumcumini*

Table 2. Absorbance of standard phenols (mg/g) Rutin

Concentration (100 µg/mL)	Absorbance
0.2	0.20

0.4	0.22
0.6	0.23
0.8	0.25
1.0	0.26



GRAPH 1: Quantitative determination of phenolic content (µg/mL**).**

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