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EXTRACTION AND PHYTOCHEMICAL ANALYSIS OF *TERMINALIA ARJUNA*.

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ABSTRACT
Phytochemical analysis of plant is very important commercially and has great interest in pharmaceutical companies for production of new drug for curing disease. The aim of present study was investigate the presence of phytochemical in the medicinal plant namely,terminalia arjuna. The leaves of selected medicinal plant were washed, dried and powered. The aqueous and organic solvent extract of leaf sample were used for phytochemical analysis to find out phytochemical constituent in terminalia arjuna. The result of phytochemical analysis of arjuna plant showed that the terpenoid, flavonoid, reducing sugar, glycosides, saponin, protein, tannin and phenol were found to be present in arjuna .It is expected that important phytochemical properties recognised by our study in the vidarbh region will be very useful in curing disease.

KEYWORDS: Medicinal Plants, *Terminalia arjuna*, Phytochemical study.

INTRODUCTION
In ancient India, medicinal plant were used to prevent various critical diseases. The plant kingdom is an important source of herbal drug. Even in recent year, there has been increase in awareness about importance of medicinal plant. Generally, herbal drugs are easily available, safe, less expansive, efficient rarely have a side effect.[7]

According to world health organisation, medicinal plant would be the best source to obtained variety of a drug. Medicinal plant contain some organic compound which provide definite physiological action on human body and these bioactive substance include tanin, alkaloid carbohydrate terpentoid, flavonoid and phenol.[2] It is effective in bringing down LDL cholesterol level. It is effective in controlling diabetes, treatment of asthama.

The powder of dry bark of arjuna tree can be taken along with honey to restore strength to fractured bone. It is herbal caffeine –free tea made from arjun tree. It helps to maintain a healthy heart and reduced the effect of stress and nervousness. It induces the drug dependant decrease in blood pressure.It also relives symptomatic complant of essensial hypertension such as giddiness, insomia, lassitude, headache and inability to concentrate.[6]

MATERIAL AND METHOD
The leaves of terminalia arjuna were collected from the field around the area of akola.

Preparation of Extract
Authentication was done by Prof. S. P. Rothe, Dept. of Botany, Shri Shivaji College, Akola. The leaves washed thoroughly 2-3 times with running tap water. The leaves were dried in room temperature for 13-15 days and then properly dried the leaves under shade, after complete shade drying the plant material was grinded in mixer. The powdered leaves ware weighed and soaked in 100 ml methanol. Supernatant was separated and precipitated was shaken with 100 ml ethanol and latter in distilled water in volumetric flask. The flask containing the leaves was shaken in 5-10 min left to stand for 24h at room temperature. After 24h mixture was filtered then under reduced pressure and redissolved in solvent to check the presence or absence of phytochemical constituents in *Terminalia arjuna* plant.

Phytochemical Screening
Phytochemical examination was carried out in aqueous and organic extract as per standard method.[8]

1. **Test for alkaloid:** Each extract was stirred with 5ml of 1% HCl on steam bath.The solution obtained was filtered and 1ml of filtrate was treated with a few drops of mayer's reagent and a turbidity of extract filtrate on addition of mayer's reagent was taken as evidences of presence of alkaloid in extract.
2. **Testing for tannin and phenolics:** The each extract was separately stirred with 10ml of distilled water and then filtered. A few drop of 5% $FeCl_3$ reagent were added to the filtrate. Blue-black or green

colouration or precipitation was taken as an indication of the presence of phenolics and tannins.

3. **Test for Saponins :** About 2gm of powdered sample was boiled in 20ml of distilled water in water bath and filtered;10ml of filtrate mix with 5ml of distilled water and shaken vigorously for a stable persistant froth. The frothing was mixed with 3 drops of olive oil shaken vigorously and observed for formation of emulsion.
4. **Test for steroid:** 2ml of acetic anhydride was added to 0.5 ethanolic extract of each sample with 2ml H_2SO_4. The colour change from violet to blue or green indicating presence of steroid.
5. **Test for terpenoid:** 5ml of each extract was mixed in 2ml chloroform and concentrated H_2SO_4 was carefully added form a layer. Reddish brown colouration of interface to show positive result.
6. **Test for glycoside:** 1ml of glacial acetic acid, few drops of ferric chloride solution and conc.H_2SO_4 were add to extract. Appearence of reddish brown ring at the junction of the liquid indicating presence of deoxysugar.
7. **Test for carbohydrate:** 1ml of filtrate were treated with 2 drops of benedict reagent and heated gently. Orange red precipitate indicate presence of reducing sugar.

RESULTS

Methonolic extract of leaves of *T. arjuna* have shown positive test for all phytochemical constituents mentioned above except steroids. Ethenolic extract of leaves of *T. arjuna* plant have shown positive results for Carbohydrates, Alkaloide, Tannin and Phenolics, Terpenoids, Glycosides but Sapononin and Steroid are absent in same extracts. Aqueous extracts of leaves of *T. arjuna* have shown positive results for Alkaloide, Tannin and Phenolics, Sapononin, Flavonoide, Carbohydrate but Steroid, Terpenoids, Glycosides are absent in this aqueous extracts.

Sr. No.	Constituents	Methanolic extract	Ethanolic extract	Aqueous extracts
1	Alkaloide	+	+	+
2	Carbohydrate	+	+	-
3	Tannin and Phenolics	+	+	+
4	Saponin	+	-	+
5	Steroid	-	-	-
6	Terpenoid	+	+	-
7	Glycoside	+	+	-
8	Flavonoid	+	+	+

+ = Present
- = Absent

CONCLUSION

T. arjuna is traditional plant used in herbal medicine, chemical and biochemical analysis are very important aspects in pharmacognostical evaluation of medicinal plants.[5] Through the chemical tests in methanolic extract of leaves of *T. arjuna* plant, it is found that the important phytochemical groups (Alkaloide, Tannin, Saponin, Flavonoid, Terpenoide) are present in this plant which actually confirms their medicinal properties.[4,1,3] Steroids are absent in all types of extracts. The result of Ethanolic extract were observed similar to the result of chemical analysis of methanolic extract except Saponin, which is present in ethanolic extract. It may be concluded that the *T. arjuna* may be used to cure some common and other various diseases. It is necessary of exploration of maximum potential of this plants in a medicinal field and pharmaceutical sciences for its appropriate application.

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