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Prof. Laxmikant Shinde

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Phytochemical screening of the leaves of *Achyranthes aspera* Linn , *Phyllanthus niruri* Linn , *Leea indica* Burm.f Tal-Dist-Palghar , Maharashtra, India

Madhu Kale, Vedika Valvi, Roshani Padvale
MSc Research Students Part-II
Sonopant Dandekar Shikshan Mandalī's College, Palghar

Dr. Dakshata Patil
Assit.Prof. Sonopant Dandekar Shikshan Mandalī's College, Palghar - 401404

Keywords:	Abstract:
<p><i>Achyranthes aspera</i> Linn, <i>Phyllanthus niruri</i> Linn, <i>Leea indica</i> Burm.f, phytochemical screening, Leaves, Medicinal Plants</p>	<p>Medicinal plants are the important source of potential drugs in our country . The plants <i>Achyranthes aspera</i> Linn, <i>Phyllanthus niruri</i> Linn, <i>Leea indica</i> Burm.f is widely used in Ayurvedic system of medicine as antidiabetic , antiasthmatic, antiviral,antibacterial, antitumor, analgesic, antifungal, anticarcinogenic , etc . The present study deals with phytochemical screening of leaves of the selected plants for its identification and to distinguish it from the co-existing weeds . The phytochemical screening of leaves is done by using solvent like chloroform . The qualitative analysis revealed the presence of alkaloids, phenol, flavonoids, glycoside, tannin, reducing sugar in the leaves. Since there is no proper information regarding this plants , our efforts were devoted to study the phytochemical analysis of this plants . Thus , present study shows that this plants having various medicinal properties and can be use for the treatment of various disease . The study is done to reveal the good impact of ethnomedicinal plants on the health . In future allopathic medicines can replace by homeopathic medicines . So this study was undertaken for proper identification , collection and investigation of the plants .</p>

INTRODUCTION :

Plants were identified with the help of Cookes flora. *Achyranthes aspera* belongs from family Amaranthaceae includes 2500 species and 174 genera distributed worldwide. *Phyllanthus niruri* belongs from family Phyllanthaceae includes 2000 species and 54 genera. *Leea indica* belongs from family Vitaceae includes 910 species and 14 genera. All selected plants are well known plants drugs in Ayurvedic, Unani-Tibbi, Siddha, Allopathic, Homeopathic, Naturapathic and Home remedies (Khare C.P. , 2007). Ethnomedicines are derived from plants and used by various tribal people of the various regions. Plants have been used for health and medicinal purposes since ancient times . Medicinal plants are the richest source of secondary metabolites which can act as bioactive components (AbhayKumar Kamble, 2018) . This plants contains numerous biologically active compounds which are helpful in the treatment of various diseases and improving the life (Samy, et, al., 2008) . This plants posses properties like anti-inflammatory, antifungal, antibacterial,antiperiodic, antidiabetic, antiasthmatic, antiviral, anticarcinogenic, etc. (Wakhloo,

et. Al., 1979) . 80% of the number of inhabitants in creating nations rely upon customary drugs, by using plant parts by WHO (Vines 2004) . Ethnomedicines is concerned with cultural interpretations of health, disease and illness and also addresses the health care seeking process and healing practices. Research interest and activities in the areas of ethnaobiology and ethnomedicine haave increased tremendously in the last decades. Apart from that, these plants plays a critical role in the development of human cultures around the whole world (Akash, Navneet, B.S.Bhandari, 2020) . For developing phytomedicines as a major area of concern, it would be essential to adopt a holistic interdisciplinary approach, have a scientific basis of the understanding of the plant systems, new innovations and their conservation for utilisation in future on a sustainable basis (Sharma, 1997) .

MATERIALS AND METHODS :

Collection of plant sample:

The leaves was collected from Tal-Dist-Palghar, Maharashtra,India



Preparation of the extract

The leaves of the selected plants were washed thoroughly in tap water to remove dust particles. The leaves were dried in shade at room temperature for 1 month and coarsely powdered by mechanical grinder. The dried powdered sample was soaked in solvent like chloroform for 5

days. After 5 days, the extracts were filtered through no.1 Whatman filter paper and stored in air tight container for further screening.

Qualitative analysis of phytochemicals

Preliminary phytochemical screening was carried out (Harborne, 1980)

1. Test for alkaloids (Mayer's test)

To 1ml of extract, 1 ml of Mayer's reagent (Potassium iodide solution) was added.

Formation of whitish yellow or cream coloured precipitate indicates the presence of alkaloids.

2. Test for steroids (Liebermann Burchard test)

To 1ml of extract, 2ml of acetic anhydride and 2ml of concentrated sulphuric acid were added.

Formation of violet to blue or green colour indicates the presence of steroids.

3. Test for terpenoids (Salkowski test)

To 1 ml of extract, 2ml of chloroform and few drops of sulphuric acid were added.

Formation of reddish brown ring indicates the presence of terpenoids.

4. Test for flavonoids (Alkaline reagent test)

To 1 ml of extract, few drops of dilute ammonium solution and few drops of concentrated hydrochloric acid were added.

A yellow colouration indicates the presence of flavonoids.

5. Test for saponins (Froth test)

To 1 ml of extract, 5 ml of distilled water was added and shaken vigorously.

Formation of froth indicates the presence of saponins.

6. Test for phenols (Lead Acetate test)

To 1ml of extract, 1 ml of lead acetate solution was added.

Formation of precipitate indicates the presence of phenols.

7. Test for tannins (Lead acetate test)

To 1ml of extract, 1ml of lead acetate was added.

A formation of white precipitate indicates the presence of tannins.

8. Test for cardiac glycosides (Keller killiani test)

To 1ml of extract, 5ml of distilled water was added and evaporated to dryness. Then to the Sample 2ml of glacial acetic acid containing trace amount of ferric chloride solution was added. Then 1ml of concentrated sulphuric acid was added along the sides of the tube.

Formation of brown ring underlayed with blue colour indicates presence of cardiac glycosides.

9. Test for amino acids (Ninhydrin test)

To the 1ml of sample, 3 to 4 drops of Ninhydrin solution was added and boiled in water bath for 10 minutes.

Formation of purple or blue colour indicates the presence of amino acids.

10. Test for proteins (Biuret test)

To the 1ml of extract, 1ml of 40% sodium hydroxide solution and 2 drops of 1% copper sulphate solution were added.

Formation of violet colour indicates the presence of proteins.

11. Test for carbohydrates (Barfoed test)

To the 2ml of extract, 1ml of Barfoed's reagent was added and boiled in water bath for few minutes.

Formation of reddish brown precipitate indicates the presence of carbohydrates.

12. Test for reducing sugars (Fehling's test)

To the 1ml of extract, equal quantities of Fehling solution A and B were added and heated.

Formation of brick red precipitate indicates the presence of reducing sugars.

OBSERVATION TABLE :

Qualitative phytochemical analysis of the leaves of *Achyranthes aspera* Linn , *Phyllanthus niruri* Linn, *Leea indica* Burm.f

TESTS	<i>Achyranthes aspera</i>	<i>Phyllanthus niruri</i>	<i>Leea indica</i>
ALKALOIDS	+	+	+
STEROIDS	-	-	-
FLAVONOIDS	-	+	+
TERPENOIDS	-	+	-
SAPONINS		+	-
PHENOLS	+	+	-
TANNINS	+	+	+
CARDIAC GLYCOSIDES	+	-	-
AMINO ACIDS	-	-	-
PROTEINS	-	-	-
CARBOHYDRATES	-	-	-
REDUCING SUGARS	+	-	+

RESULTS :

The qualitative analysis were done to find out which phytochemicals found in the selected plants. The selected plants shows the traces of the secondary metabolites in their leaves. The plant *Achyranthes aspera* shows the presence alkaloids, phenols, tannins, cardiac glycosides and reducing sugar. The plant *Phyllanthus niruri* shows the presence of alkaloids, flavonoids, terpenoids, saponins, tannins. The plant *Leea indica* shows the presence of alkaloids, flavonoids, tannins, reducing sugar.

CONCLUSION :

The three selected plants possess the different kinds of the phytochemicals in their leaves. Medicinal plants are the richest source of secondary metabolites which can act as bioactive components. And this phytochemicals have medicinal properties which can be used for treating and preventing various disease. This plants acts as antidiabetic, antiasthmatic, antiviral, antibacterial, antitumor, analgesic, antifungal, anticarcinogenic agents. In future allopathic medicines get replace by homeopathic medicines. It will reduce the dependence on the pharmaceutical drugs. Phytochemical analysis will surely reveal the beneficial properties . This study will definitely utilize the plants which considered to be weeds. It will be helpful in searching for bioactive agents those can be used in the synthesis of useful drugs.

REFERENCES :

1. **Abhaykumar Kamble (2018)** : Phytochemical studies on *Achyranthes aspera* EISSN 2392-2192.
2. **Harborne, J. B. (1980)** : Phytochemical methods. Chapman and Hall limited, London. 49 - 189.

3. **Khare, C. P. (2007)** : Indian Medicinal Plants - An illustrated dictionary; Springer - Verlag Berlin, 18 - 19.
4. **Okoye V.O.; Brase S.O. and Onyegbule, F.A (2020)** : Phytochemical screening and pharmacognostic properties of *Peur ar phaseoloides* leaves (ROXB), Benth. (Fabaceae). Inter J. Pub. Health Pharmacy Pharmacol.5(2):11-24.
5. **Prachi Tiwari, Pooja Gond, Satyendra Koshale (2018)** : Phytochemical analysis of different parts of *Achyranthes Aspera* Journal of Pharmacognosy and Phytochemistry SP2: 60-62.
6. **Wakhloo, R. L. Wakhloo, D. Gupta, O. P., Atal, C. K . (1979)** : Vasicine hydrochloride, a new drug for interruption of pregnancy. Journal of Obstetrics and Gynaecology of India. 29: 939-940.