IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

Exploring The Medicinal Benefits Of Key Plant Species: A Comprehensive Review

Syam Prasad Sura

Department of Botany

Government Degree College,Bhupalpally

Telangana-506169

Abstract:

In today's modern era, humans suffer from many minor ailments, for which they often consume various allopathic medicines. These medicines are composed of many chemicals, which can be harmful if taken over a long period. Interestingly, many plants contain chemicals useful in diagnosing and treating diseases without these harmful side effects. The present review discusses some of these medicinally important plants.

Keywords: Allopathic medicines, plants, phytochemical analysis

Introduction

Every substance possesses unique properties. AcharyaPriyavrata Sharma defined DravyaGunaShastra as the branch that deals with the properties, actions, and therapeutic effects of various drugs (Dravyas). Certain plants possess chemical properties that not only cure diseases but also strengthen the body by eliminating weaknesses and toxins, thereby enhancing immunity. Until the 18th century, the therapeutic properties of many plants were known, but their active compounds were unidentified. The advent of modern science, particularly during the Renaissance, along with chemical analysis and instrumentation like the microscope, enabled the isolation of these active principles. This led to the expanded use of medicinal plants, though their direct application has diminished in modern medicine.

This paper reviews the chemical properties and medicinal values of some important plants.

Chemical Properties and Medicinal Value of Various Plants

1. ***Withaniasomnifera* (L.) Dunal**
   Common Name: Ashwagandha
   Plant Family: Solanaceae
   Habit: An erect branched undershrub, covered with stellate ashy-tomentum.
   Leaves: Ovate or ovate-lanceolate, apex obtuse, base rounded, ashy tomentose on both sides, petiolate.
   Inflorescence: Umbellate cymes.
   Flowers: Yellowish-green, with a bell-shaped corolla and bifid stigma.
   Fruits: Red berry enclosed in an inflated calyx.
   Flowering and Fruiting Time: September – November
   Chemical Constituents: Flavonoids, phenolic acids, alkaloids, and terpenoids.
   Medicinal Value: Relieves stress and anxiety, lowers blood sugar and fat, increases muscle and strength, improves sexual function in women, boosts fertility and testosterone levels in men, sharpens focus and memory, and supports heart health.

2. ***Phyllanthusemblica L*.**
   Common Name: Indian Gooseberry, Amla
   Plant Family: Euphorbiaceae
   Habit: A small, deciduous tree.
   Leaves: Small, linear, obtuse, appear like pinnate leaves.
   Flowers: Greenish-yellow, male flowers many on short pedicels, female flowers few, sub sessile.
   Fruits: Fleshy, globose, pale yellow with vertical furrows.
   Flowering and Fruiting Time: February - May
   Chemical Constituents: Triacontanol, betulonic acid, daucosterol, lupeol acetate, β-amyrin-3-palmitate, gallic acid, betulinic acid, ursolic acid, oleanolic acid, quercetin, and rutin.
   Medicinal Value: Increases immunity, rejuvenates, treats bleeding disorders, benefits diabetic patients, restores vision, and promotes hair health.

3. ***Terminaliaarjuna*(Roxb) W. & A.**
   Common Name: Arjun Tree
   Plant Family: Combretaceae
   Habit: A large tree with white bark.
   Leaves: Subopposite, ovate-oblong, coriaceous, petioles with glands.
   Inflorescence: Axillary spikes.
   Flowers: Sessile with campanulate calyx.
   Fruits: Samara with thick wings.
   Flowering and Fruiting Time: April–May
   Chemical Constituents: Triterpenoids, glycosides, flavonoids, polyphenols, tannins, saponins, sterols, calcium, magnesium, zinc, copper, amino acids.
   Medicinal Value: Manages chest pain (angina), increases exercise tolerance, improves HDL levels, and reduces blood pressure.

4. ***Mucunapruriens* (L.) DC.**
Common Name: Velvet Bean, Cowitch, Kapikachu
Plant Family: Papilionaceae
Habit: Twiner
Leaves: 3-foliate, silky.
Flowers: Purple in racemes.
Fruits: Curved pods with irritant hairs.
Flowering and Fruiting Time: August - December
Chemical Constituents: High content of lipids, minerals, carbohydrates, fiber, amino acids, crude carbohydrate, crude lipid, crude fiber, ash content, and rich in minerals like potassium, magnesium, calcium, iron, sodium, phosphorus, copper, zinc, manganese.
Medicinal Value: Increases mounting frequency, ejaculation latency, reduces blood glucose levels, improves sperm count and motility, and treats infertility.

5. ***Tinosporacordifolia* (Willd) Miers**
Common Name: Indian Tinospora
Plant Family: Menispermaceae
Habit: Climber
Leaves: Cordate with a broad sinus.
Inflorescence: Raceme longer than the leaves.
Flowers: Yellow, male flowers fascicled, female usually solitary.
Fruits: Drupe, red.
Flowering and Fruiting Time: April - May
Chemical Constituents: Alkaloids, glycosides, steroids, phenolics, aliphatic compounds, polysaccharides.
Medicinal Value: Treats fever, jaundice, chronic diarrhea, cancer, dysentery, bone fractures, pain, asthma, skin disease, poisonous insect, snake bite, and eye disorders.

6. ***Tribulusterrestris* L.**
Common Name: Gokhru
Plant Family: Zygophyllaceae
Habit: Procumbent herb
Leaves: Abruptly pinnate, hairy.
Flowers: Yellow
Fruits: Hairy, with sharp spines.
Flowering and Fruiting Time: August - November
Chemical Constituents: Saponins, flavonoids, glycosides, alkaloids, tannins, furostanol, spirostanolsaponins, sulfated saponins.
Medicinal Value: Used as tonic, aphrodisiac, palliative, astringent, stomachic, antihypertensive, diuretic, lithotriptic, urinary disinfectant, treats genitourinary tract disorders, impotence, venereal diseases, sexual debility, eye trouble, edema, abdominal distension, sexual dysfunction, cardiotonic, diuretic, and laxative.

Conclusion

In recent times, there has been a significant increase in diseases like hypertension, diabetes, and chest pain, leading patients to spend heavily on allopathic medicines. However, many such diseases were traditionally treated with herbs. Even today, plants like Ashwagandha, Amla, Arjuna, Gokharu, and Giloy can be used to manage these conditions, offering a natural alternative with fewer side effects.

References

1. Singh N, Bhalla M, de Jager P, Gilca M. An overview on ashwagandha: a Rasayana (rejuvenator) of Ayurveda. African journal of traditional, complementary and alternative medicines, 2011, 8(5S).
2. Bonlawar, J., Setia, A., Challa, R.R., Vallamkonda, B., Mehata, A.K., Vaishali, ,Viswanadh, M.K., Muthu, M.S. (2024). Targeted Nanotheransotics: Integration of Preclinical MRI and CT in the Molecular Imaging and Therapy of Advanced Diseases. *Nanotheranostics*, 8(3), 401-426.
3. Gupta S, Bishnoi JP, Kumar N, Kumar H, Nidheesh T. Terminaliaarjuna (Roxb.) Wight &Arn.: Competent source of bioactive components in functional food and drugs. The Pharma Innovation Journal, 2018:7(3):223-231.
4. Pasala, P. K., Rudrapal, M., Challa, R. R., Ahmad, S. F., Vallamkonda, B., & R., R. B. (2024). Anti-Parkinson potential of hesperetin nanoparticles: *in vivo* and *in silico* investigations. *Natural Product Research*, 1–10.
5. Chaudhari M, Mengi S. Evaluation of phytoconstituents of Terminaliaarjuna for wound healing activity in rats. Phytotherapy Research: An International Journal Devoted to Pharmacological and Toxicological Evaluation of Natural Product Derivatives, 2006:20(9):799-805.
6. Dwivedi S, Chopra D. Revisiting Terminaliaarjuna–an ancient cardiovascular drug. Journal of traditional and complementary medicine, 2014:4(4):224-231.
7. Chakravarthy, P.S.A., Popli, P., Challa, R.R. *et al.* Bile salts: unlocking the potential as bio-surfactant for enhanced drug absorption. *J Nanopart Res* **26**, 76 (2024).
8. Ravindran V, Ravindran G. Nutritional and anti-nutritional characteristics of mucuna (Mucunautilis) bean seeds. Journal of the Science of Food and Agriculture, 1988:46(1):71-79.
9. Suseela, M. N. L., Mehata, A. K., Vallamkonda, B., Gokul, P., Pradhan, A., Pandey, J., ... & Muthu, M. S. (2024). Comparative Evaluation of Liquid-Liquid Extraction and Nanosorbent Extraction for HPLC-PDA Analysis of Cabazitaxel from Rat Plasma. *Journal of Pharmaceutical and Biomedical Analysis*, 116-149.