9. Summary & Conclusion
9.0 SUMMARY AND CONCLUSION.

The present study was aimed to investigate the chemical and pharmacological properties of *Clerodendrum serratum* Linn in the management of asthma.

Leaves, stems and roots of the plant were used for Pharmacognostical, Phytochemical and Pharmacological evaluations.

Microscopical study showed that following diagnostic characters are present in the roots, stem and leaves of the plant:

- **Roots**
  1. Bark with a simple, homogeneous periderm and a single persistent phellogen.
  2. Secondary xylem with fairly distinct growth rings, boundary parenchyma, vascular tracheids and vessels fibres.
  4. Xylem rays mostly multiseriate and heterocellular.
  5. Vessel elements short and cylindrical with simple, horizontal

- **Leaves:**
  1. Adaxial surfaces of the leaf is characterized by prominent hump whereas Abaxial surface is uneven. This anatomical feature helps to differentiate it from *C. inerme* where the Adaxial surface is seimicircular in nature and Abaxial surface is even.

- **Stems:**

  The stems of *C. Serratum* is characterized with wide pith and compact parenchymatous cells.

- The preliminary phytochemical screening showed the presence of, saponins, alkaloids, steroids and flavonoids along with other phytoconstituents.
Summary & Conclusion

✓ Chromatographic studies showed effective separation and presence of flavonoids, Terpenoids, and saponins.

✓ The present study revealed that, ethanolic and aqueous extract of roots of the plant has significant dose dependent anti asthmatic activity in various experimental animal models and can be attributed to antihistaminic (H₁-antagonist), antiallergic, anti-inflammatory, mast cell stabilizing and bronchodilator activity suggesting its potential in prophylaxis and treatment of allergic diseases and disorders.

✓ Isolation studies revealed the presence of a flavonoid glycoside, Apigenin-7-glucoside and a new pentacyclic triterpenoid saponin, Icosahydropicenic acid. It is well known that flavonoids and saponins play a major role in treatment of asthma.

✓ Icosahydropicenic acid also demonstrated significant anti asthmatic activity in different in-vivo and in-vitro animal models.

The present study satisfactorily confirms that the roots, stems and leaves of Clerodendrum serratum Linn (Verbenaceae) commonly known as Bharangi has significant anti asthmatic activity and thus the study justifies the traditional claim of the plant in the treatment of the asthma, which can be attributable due to the presence of chemical moieties like Apigenin, Icosahydropicenic acid, alkaloids and various sterols.