



RESEARCH ARTICLE

QUALITATIVE PHYTOCHEMICAL ANALYSIS OF *Alternanthera tenella* AND  
*Diptheracanthus prostratus*

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ABSTRACT

Medicinal plants have an important role in the discovery of new drugs. They are safe and cheaper alternative medicine than modern medicines. The study has been focused to assess the qualitative phytochemical analysis of *Alternanthera tenella* and *Diptheracanthus prostratus* leaves, stem and root. Both plants have most of the phytochemicals. In our present study, the investigated plants have a number of phytochemical glycosides, steroids and alkaloids were higher amount. Quinone, phenols and tannins were moderate amount. Saponins, anthraquinones, terpenoids, triterpenoids, flavonoids, coumarins, carotenoids and  $\beta$  - carotenes were less amount. Phytochemical may help to protect against a variety of diseases. Several bioactive constituents have been isolated and studied for pharmacological activity.

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INTRODUCTION

Medicinal plants are of great importance to the health of individuals and communities. World Health Organization (WHO) estimates that up to 80% of people still rely on traditional remedies such as herbs for their medicine (Arunkumar and Muthuselvam, 2009). Phytochemicals are non-nutrients biologically active compounds, found in small amounts and protection against degenerative disease (Dreosti, 2000). *Alternanthera tenella* Colla. (Amaranthaceae). A terrestrial prostrate herb. (Mayuranathan, 1992). *Diptheracanthus prostratus* (Poir) Nees. (Acanthaceae). A shrub in dry places and in gardens. (Henry, 1987). The present study carried out the qualitative analysis of phytochemical on the plant samples reveal the presence of medicinally active constituents useful in preventing disease and improve health.

MATERIALS AND METHODS

Plant collection and Authentication

The two plants were collected and identified by botanist Dr. P. Jayaraman, Director, Institute of herbal botany, Plant Anatomy Research Centre, West Tambaram, Chennai.

Sample preparation

The plants were collected from several areas around Chennai. Washed thoroughly two to three times with running tap water, rinsed with distilled water to remove the adhering dirt. Plant

parts were separated and cut into small pieces. Then shade dried under room temperature for two weeks. After completely dried materials were powdered using a kitchen blender.

Qualitative Phytochemical Analysis

Both plants the alkaloids, saponins, phytosterols, phenolic compounds, tannins and coumarins were analyzed by the procedure of British Pharmacopeia (2007). Glycosides was analyzed by the procedure of European Pharmacopeia (2007). Terpenoids, flavonoids, carotenoids and  $\beta$  - carotene were analyzed by the procedure of Lawrence Evans.

RESULT

Results showed the presence of all phytochemicals except quinone, anthraquinone and coumarins. In *A. tenella* the glycosides were very high amount (+++++). Steroids and alkaloids were higher amount (+++). Quinone, phenols and tannins were moderate amount (++) . Saponins, anthraquinones, terpenoids, triterpenoids, flavonoids, coumarins, carotenoids and  $\beta$  - carotenes were low amount (+) and quinone, anthraquinones and coumarin were negative result (-) in *D. prostratus* root (Table1).

DISCUSSION

Medicinal plants possess a variety of compounds of known therapeutic properties (Chopra et al. 1992; Ahmad and Beg, 2001). Compared to *Diptheracanthus prostratus*, the *Alternanthera tenella* plant have all phytochemicals in more amount. Saponins, alkaloids, glycosides and tannins have

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various biological activities including anti - inflammatory, antiatherosclerotic, antitumor, antimutagenic, anticarcinogenic, antibacterial and antiviral activities (Aiyegoro and OKoh, 2010). Flavonoids are strong antioxidant protect against the different levels of carcinogenesis (Okwu, 2004) and have a wide range of biological activities (Hodek et al., 2002). Carotenoids promoted as anticancer chemicals may help reduce the risk of cancer. Coumarin contains valuable as dietary supplements, antimicrobial, anti-inflammatory effects. Beta-carotene and phenolic compounds have antioxidant activity. Terpenes prevent certain cancers and heart disease. Saponins play a role in preventing the multiplication of cancer cells.

**Table1. Qualitative phytochemical analysis of leaf, stem and root of *Alternanthera tenella* and *Dipteracanthus prostratus***

| S.no. | Phytochemical      | Leaf  |     | Stem  |     | Root  |     |
|-------|--------------------|-------|-----|-------|-----|-------|-----|
|       |                    | A.t   | D.p | A.t   | D.p | A.t   | D.p |
| 1.    | Alkaloids          | ++    | +   | +++   | +   | +++   | +   |
| 2.    | Glycosides         | +++++ | ++  | +++++ | ++  | +++++ | +++ |
| 3.    | Tannins            | +     | ++  | +     | ++  | +     | +   |
| 4.    | Saponins           | +     | +   | +     | +   | +     | +   |
| 5.    | Quinone            | ++    | +   | ++    | +   | ++    | -   |
| 6.    | Anthraquinone      | +     | +   | +     | +   | +     | -   |
| 7.    | Steroids           | +++   | +   | +++   | +   | +++   | ++  |
| 8.    | Phenols            | ++    | +   | ++    | +   | ++    | +   |
| 9.    | Terpenoids         | +     | +   | +     | +   | +     | +   |
| 10.   | Triterpenoids      | +     | +   | +     | +   | +     | +   |
| 11.   | Flavonoids         | +     | +   | +     | +   | +     | +   |
| 12.   | Coumarins          | +     | +   | +     | +   | +     | -   |
| 13.   | Carotenoids        | +     | +   | +     | +   | +     | +   |
| 14.   | $\beta$ - carotene | +     | +   | +     | +   | +     | +   |

(-) Absence of constituents

Presence of constituents: (+) low, (++) moderate, (+++) higher, (+++++) very high  
At - *Alternanthera tenella* , Dp - *Dipteracanthus prostratus*

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