International Journal of Advance and Innovative Research
Volume 6, Issue 1 (XVI): January - March, 2019
ISSN 2394 - 7780

QUANTITATIVE ESTIMATION OF BIOACTIVE PHYTOCONSTITUENTS PRESENT IN *DALBERGIA LANCEOLARIA* SUBSP. *PANICULATA* (ROXB.) THOTH. METHANOLIC LEAF AND BARK EXTRACT

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ABSTRACTS
Dalbergia lanceolaria subsp. paniculata (Roxb.) Thoth. is a very important medicinal plant in the deciduous forest. It is large tree belongs to the family Fabaceae. Whole parts of the plant are rich in secondary metabolite, which impart miraculous medicinal uses to the plants. A decoction of bark used in dyspepsia. Oil applied to rheumatic affections, and cutaneous diseases. Leaves are used in leprosy and allied obstinate skin diseases. Leaf paste with Castor oil is applied on filarial swellings. Leaves and flowers possess properties to treat arthritic affections and inflammations. Aqueous extract of leaves exhibited antiarthritic activity in rats.

Present investigation was designed for quantitative estimation of bioactive constituents present in Dalbergia lanceolaria subsp. paniculata (Roxb.) Thoth. methanolic leaf and bark extract. The methanolic extracts of the plants leaves and bark were screened for the presence of various phytoconstituents such as steroids, alkaloids, terpenoids, glycosides, flavonoids and carbohydrates. Quantitative estimation results shows leaves extract has (1.82 mg/g) alkaloid, (0.407 mg/g) carbohydrate, (0.22 µg/ml) protein, (0.59 mg/g) phenols, (0.28 mg/g) flavonoids, (0.99 mg/g) saponins, and (0.09 mg/g) tannins. While bark extract showed (2.07 mg/g) alkaloid, (0.179 mg/g) carbohydrate, (0.08 µg/ml) proteins,(0.88 mg/g) phenols, (0.44 mg/g) flavonoids, (1.28 mg/g) saponins and (0.095 mg/g) tannins.

Keywords: Dalbergia lanceolaria subsp. paniculata (Roxb.) Thoth., Quantitative estimation, Phytoconstituents.

INTRODUCTION
India has the rich biodiversity in which 2 out of 25 biodiversity hot spot of the world are present. Biodiversity of India is important for its religious, spiritual and other traditional uses (Ganesan, *et al.,* 2009). Many medicinal plants are used in Indian traditional health care system, and proposed for their interesting multilevel activities. Modern medicine is evolved from folk medicine and traditional system thorough chemical and pharmaceutical screening. Till this date plants remain a major source of medicinal compounds. Traditional medicines are used because it is cheaper, with minimal side effect and safe (Umadevi, *et al.,* 2013). To ensure the safety of its products and practices standardization is very much importance. The knowledge of medicinal plants percolated from our ancient literature such as Vedas. More over in the Indian system of medicine, most herbal practitioners formulate and dispense their own medicinal therapy. All these formulation requires proper documentation and research (Tambekar , *et al.,* 2010).

Dalbergia lanceolaria subsp. *paniculata* (Roxb.) Thoth. was known to use for timber yielding tree belonging to family leguminosae. It was reported that it has potent antioxidant activity, ant-inflammatory activities, antimicrobial activity, oestrogenic and larvicidal properties (kumar, *et.al.,* 2015). It was evaluated that stem bark used for baldness and dysmennorhea (Krishna, *et.al.,* 2011, Murthy, 2012). It was reported that leaves were used as antifilariasis (Kumar and Suryanarayana, 2013). Number of compounds were isolated from the plant (Saha, *et.al.,* 2013). Four isoflavonoids were isolated from ethanolic extracts of stem bark and leaves of plant (Amin, *et.al.,* 2012).

MATERIALS AND METHOD
Collection of Plant Materials
Leaves and bark of *Dalbergia lanceolaria* subsp. *paniculata* (Roxb.) Thoth. were collected from Mahur forest (N 19049.513' E 77055'.442') in Nanded district of Maharashtra. Specimen were identified and authenticated by Harbarium, Department of Botany, Dr. Babasaheb Ambedkar Marathwada University, Aurangabad (Accession No.- 17395). Freshly collected leaves and stem bark of the plants were dried in shade and pulverized to coarse powder. The powder was stored in an airtight container and kept in a cool, dark, and dry place (Hassan, *et.al.,* 2014; Das, *et.al.,* 2014).

ISSN 2394 - 7780

Fig-1: Showing *D.* lanceolaria subsp. paniculata (Roxb.) Thoth. Bark

Fig-2: Showing D. lanceolaria subsp. paniculata (Roxb.) Thoth. Leaf

METHOD OF PREPARATION OF METHANOL EXTRACT

The extraction was done by hot continuous method using Soxhlet apparatus. The 25 gm powder of leaves and bark were extracted using 250 ml methanol for 72 hours. The methanolic extract of bark and leaves of the plants were used for the further study (Vijayalakshmi, *et.al.,* 2012).

- **Quantitative estimation**

Quantitative estimation of Alkoloids, Carbohydrates, Phenols, Flavonoids, Proteins, Tannins Saponins was carried out by the following methods.

- **Alkaloids determination** - (Harborne, 1973).
- **Determination of Total Carbohydrates by Anthrone Method** (Hedge and Hofreiter, 1962; Sadasivam, and Manickam, 2008).
- **Determination of total flavonoids content** (Zhishen *et.al.,* 1999).
- **Estimation of proteins by Lowry's method** (Lowry, *et.al.,*1951; Sadasivam, and Manickam, 2008).
- **ESTIMATION OF TANNINS** (Schanderl, 1970; Sadasivam and Manikam, 2008)
- **Phenols** (Mallick and Singh, 1980; Sadasivam and manickam,1980)
- **Saponins determination** (Igwenyi and Elekwa, 2014)

RESULTS AND DISCUSSION

The medicinal value of plant depends upon the bioactive phytoconstituents of the plant and which shows various physiological effects on human body (Sheikh, *et.al.,* 2013). So the knowledge of phytoconstituents present in the plant can be important to detect with the help of phytochemical screening (Kumar and Hemalatha, 2013).

Quantitative analysis of the bark extract showed the presence of 1.82 mg/g and 2.07 mg/g alkaloids in the leaves and bark extract of the plant. This study also revealed that presence of 0.407 mg/g carbohydrates, 0.22 µg/ ml proteins, 0.59 mg/g phenols, 0.28 mg/g flavonoids, 0.99 mg/g saponins and 0.09 mg/g tannins in the leaves extract of the plant. This study also evaluated the 0.179 mg/g carbohydrates, 0.8 mg/g proteins, 0.88 mg/g phenols, 0.44 mg/g flavonoids, 1.28 mg/g saponins and 0.095 mg/g tannin in the bark extract of the plant.

Quantitative estimation was carried out to correlate relationship of the secondary metabolites present in the leaves and bark extract of plant and possible biological activities to evaluate as a potential source of natural bioactive chemicals (Patel, *et.al.,* 2013). Total phenolic and flavonoid contain was found 210±1.56 and 46±3.61 respectively in the *Dalbergia latifolia* bark extracts (Khalid, *et.al.,* 2015). *Dalbergia sisso* ethyl acetate and ethanol extract study evaluated that the presence of 0.22 mg/g and 0.18 mg/g phenols while 0.17 mg/g and 0.16 flavonoid respectively (Muthu, *et.al.,* 2014). *Artemisia persica* methanolic extract reveled that it contain 407 mg/g total phenol and 308 mg/g flavonoids (Rashid, *et.al.,* 2010). Significant amount of total phenolic, total flavonoid content was found in *Pandanus conoideus* Lam. (Rohman, *et.al.,* 2010). *Tetracarpidium conophorum* root extract showed the presence of Tannin,0.545mg/g Saponins,10.705mg/g, Alkaloids, 0.41mg/g, Oxalate,0.895mg/g and Phenols, 0.215mg/g (Ayoola, *et.al.,* 2011).

ISSN 2394 - 7780

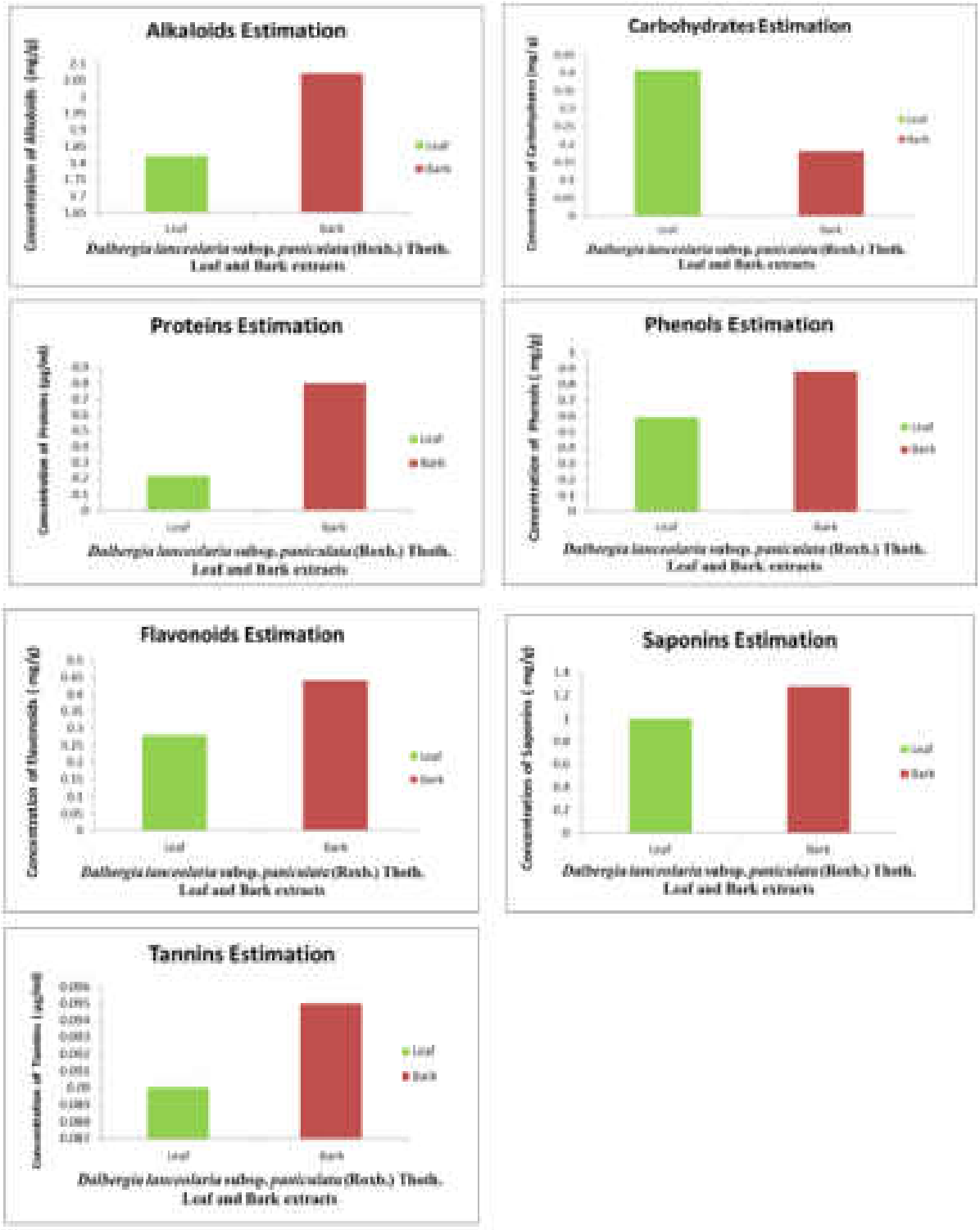

Fig.- Graphical representation of different bioactive constituents present in leaves and bark extracts of *Dalbergia lanceolaria* subsp. *paniculata* (Roxb.) Thoth.

CONCLUSION

Quantitative analysis showed that plants are rich in the phytoconstituents. Quantitative estimation was carried out to correlate relationship of the secondary metabolites present in the leaves and bark extract of plant and possible biological activities to evaluate as a potential source of natural bioactive chemicals. Present investigation is useful in differentiating the species from the adulterant and act as a biochemical marker for this medicinally important plant in the pharmaceutical industry and plant systematic studies.

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