INTRODUCTION

*Lannea coromendelica* (Houtt.) Merr. (Anacardiaceae) is a deciduous tropical tree widely distributed in India and some other tropical countries. Local name (Tamil) of the plant is Oti, Odi, Vodiyar. Fresh aqueous extract of *L. coromendelica* bark is a valuable application to sore eyes and obstinate ulcers. Bark, powder mixed with neem oil is an application for chronic ulcers and skin diseases such as impetigo. Powdered bark is used as a paste for leprous ulcers (Nadkarni, 1998). Various phytochemicals have been isolated from *Lannea* spp., including quercetin-3-O-arabinoside and ellagic acid (Subramanian and Nair, 1971), β-sitosterol, physcion and physcion anthranol B from the bark (Subramanian and Nair, 1971). Hence the present study aims to analyse the dihydroflavonols from bark powder of *L. coromendelica*.

MATERIAL AND METHODS

Collection of Plant Material

The identification of the plant was carried out with the help of the *Flora of the Presidency of Madras*, Gamble. The stem bark of *L. coromendelica* was collected at Perungudi village, Madurai district, South India in the month of January 2010, with the guidance from Siddha medical practitioners. The material was then shade-dried and coarsely powdered.

Analysis of Dihydro flavonols by FT - IR and GC - MS Spectrometry

Five grams of *L. coromendelica* fine bark powder was taken for FT - IR and GC - MS studies. This powder was mixed with citric acid extracted from lemon and beads were prepared. The beads were kept in the oven for removal of citric acid and water. Backing beads were taken in the beaker and to this 10 ml of acetone was added. Then this mixture was kept for 24 hours at room temperature. Reddish brown colour was observed after above mentioned reaction time. This sample was kept in hot air oven for 1 or 2 minutes at 80 °C for removing acetone. For further purification 10 ml of methoxide was also added to this sample and kept for 24 hours at room temperature. Two different layers were
observed after 24 hours, the top colourless light yellow layer and the brown colour sediment at the bottom. The top layer of the sample was filtered using Whatman No. 1 filter paper and it was kept in hot air oven for 1 or 2 minutes at 80 °C for removing methoxide. This pure colourless sample was collected and kept at 4 °C for the analysis. Sample were analyzed by Gas Chromatography (GC) and Fourier Transform Infrared Spectroscopy Fourier (FT - IR). Identification of dihydroflavonols were carried out on a Agilent coupled with Jeol GC mate – II Mass Spectrometer. The operating conditions were as follows: Initial column temperature 80 °C programmed at a rate of 5 °C / min to 280 °C: Inlet temperature 250 °C. Carrier gas: Helium. Flow rate 30 ml / min. Perkin Elemer Spectrum - I, instrument was used to identify chemical constituents of the sample. Liquid sample was used for FT - IR Studies, neat spectrum was recorded using sodium chloride disc.

RESULTS AND DISCUSSION

Various phytochemicals have been isolated from *Lannea* spp., including quercetin-3-O-arabinoside and ellagic acid (Subramanian and Nair, 1971), β-sitosterol, physcion and physcion anthranol B from the bark (Subramanian and Nair, 1971), rutin and quercetin (Sulochana and sastry, 1968), and laceolatin-B and 7,2'-dimethoxy-4'5'-methylenedioxy flavones (Sultana and Ilyas, 1986b) from leaves and flowers, ferulic acid ester from the roots (Govindachari, et al., 1971) and two cytotoxic hydroguinones, lanneaquinol and 2'-((R)-hydroxylannequinol were reported from *L. welwitchii* ( Groweiss, et al.,1997).

FT - IR Spectra were obtained using Perkin Elemer Spectrum - I, instrument was used to identify chemical constituents of the sample. Liquid sample was used for FT - IR Studies, neat spectrum was recorded using Sodium chloride disc. Absorption peaks observed in term of wave numbers (Cm⁻¹).

IR Spectroscopy was carried out to confirm functional groups. IR spectrum presented in Fig. 1 showed absorption peaks of flavonol compounds such as O-H Stretching (3399 cm⁻¹), C-H Stretching (1449 cm⁻¹, 1421 cm⁻¹, 1368 cm⁻¹, 699 cm⁻¹) and COO Stretching (1659 cm⁻¹) was also detected.

![Fig. 1: FT-IR Spectrum of bark powder of Lannea coromendelica (Houtt.) Merr](image-url)
Fig. 2: GC-MS of (2R, 3S)-(+)-3',5-dihydroxy-4',7-dimethoxydihydroflavonol

Fig. 3: GC-MS of (2R,3R)-(+)-4',5',7-trimethoxydihydroflavonol
Fig. A4: GC-MS of (2R,3R)-(+)-4',7-dimethyldihydroquercetin

Fig. 5: GC-MS of (2R,3R)-(+)-4',7-di-O-methyldihydrokaempferol
The GC - MASS and FT - IR studies clearly indicate that the following dihydroflavonols are present in the bark powder of *Lannea coromendelica* (Houtt.) Merr, (2R,3S)-(+) -3',5-dihydroxy-4',7-dimethoxydihydroflavonol (1) \([C_{17}H_{16}O_{7}] \text{ mw 332.0896}\) and it was confirmed by the presence of peak value is 332.1000 in Fig. 2 and (2R,3R)-(+) -4',5',7-trimethoxydihydroflavonol (2) \([C_{18}H_{18}O_{6}] \text{ mw 330.1103}\) it was confirmed by the presence of peak value 330.1000 as shown in Fig. 3 and (2R, 3R)-(+) -4',7dimethyl-dihydro-quinetin(3) \([C_{17}H_{16}O_{7}] \text{ mw 332.0883}\) it was confirmed by the presence of peak value 332.1000 as shown in Fig. 4 and (2R,3R)-(+) -4'-O-methyl-dihydrokaempferol (4) \([C_{17}H_{15}O_{6}] \text{ mw 316.0947}\) it was clearly confirmed by the presence of peak value is 316.0947 as shown in Fig. 5 and (2R,3R)-(+) -4'-O-methylidihydro-quinetin (5) \([C_{17}H_{15}O_{6}] \text{ mw 318.0739}\) it was confirmed by the presence of peak value 318.0733 as shown in Fig. 6.

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**REFERENCES**


