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EVALUATION OF FLAVONOID CONTENTS FROM SOME TREE SPECIES OF JALORE DISTRICT OF RAJASTHAN

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ABSTRACT

Evaluation of flavonoid contents from three selected medicinal tree species growing in Pali district of Rajasthan like *Cordia dichotoma*, *Cordia gharaf* and *Dichrostachys cinerea* was carried out. The leaves of selected trees collected from three different sites i.e. Ahore, Bhinmal and Sanchore areas of Jalore district were analysed for flavonoid contents i.e. Quercetin and Kaempferol. Flavonoid contents like Quercetin and Kaempferol were isolated and identified. Among all the plant samples tested the total flavonoid contents were found maximum (2.20 mg/g.d.w.) in leaves of *Cordia dichotoma* collected from Ahore area and minimum (1.86 mg/g.d.w.) in the leaves of *Dichrostachys cinerea* collected from the Bhinmal area.

Keywords: *Flavonoid Contents, Tree Species, Jalore District, Rajasthan*

INTRODUCTION

Pali district of Rajasthan is rich in medicinal tree species with a wide range of habitats. These medicinal tree species are good source of phytochemicals of pharmaceutical interest such as flavonoids, sterols, alkaloids, phenolic compounds, sulphides, isothiocyanates, anthocynins, terpenoids etc. A number of plant species have been screened by many workers for evaluation of antimicrobial principles like flavonoids (Nag *et al.*, 1988; Singh *et al.*, 1988; Ahmed *et al.*, 1999; Ahmed *et al.*, 2001; Kapoor and Ranga, 2003; Kapoor and Kumar, 2005; Kapoor and Mishra, 2013; Kapoor and Purohit, 2013; Kapoor and Pandita, 2013; Kapoor and Kumar, 2014; Kapoor and Swami, 2015).

MATERIALS AND METHODS

Present investigation describes the isolation, identification and quantitative estimation of flavonoid contents from leaves of three selected medicinal tree species growing in Jalore district of Rajasthan like *Cordia dichotoma*, *Cordia gharaf* and *Dichrostachys cinerea*. The leaves of all the three selected tree species taken for present investigation were collected from three different areas Ahore, Bhinmal and Sanchore of Jalore district. These were washed with tap water to remove dust, wiped off with cotton and separately cut to small pieces. The plant parts were dried at 100°C for 15 minutes to inactivate the enzymes followed at 60°C till the constant weight was achieved in each case. Each of the dried materials was finally powdered and used for estimation of flavonoids.

Dried and powdered leaves of the selected plant species were collected from Bikaner district and separately soxhlet extracted with 80% hot ethanol (Kapoor and Kumar, 2014). On a water bath for 24 hrs. Each of the extracts was concentrated and concentrate re-extracted with petroleum ether (Fraction-I), ether (Fraction-II) and ethyl acetate (Fraction-III) in succession.

Fraction-III was dried in vacuo and the resultant was hydrolysed with 7% H₂SO₄ for 2 hrs. The mixture was filtered and the filtrate extracted with ethyl acetate. Concentrated ether and ethyl acetate fraction were applied on TLC.

Plates along with standard reference compounds and the plates developed with the solvent system n-butanol, acetic acid and water (4:1:5) when kaempferol and quercetin were detected.

The compounds were isolated by preparative TLC and crystallized, mp (quercetin 309°-311° C and kaempferol 271°- 273° C). IR spectra compared well with their authentic samples. Quantitative estimation of flavonoid contents was carried out by method given by Kariyone *et al.*, 1993 and Naghski *et al.*, 1975 for quercetin and Mabry *et al.*, 1970 for kaempferol.

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RESULTS AND DISCUSSION

Quercetin and Kaempferol were isolated and identified. Their quantitative estimation is given in the following Table 1.

Table 1: Flavonoid Contents (mg/g.d.w.) from Leaves of Selected Tree Species

Plants	Plants Parts	Quercetin	Kaempferol	Total Flavonoid Contents
<i>Cordia dichotoma</i>	Leaves I	1.24	0.96	2.20
	Leaves II	1.06	0.98	2.04
	Leaves III	1.22	0.89	2.11
<i>Cordia gharaf</i>	Leaves I	1.02	0.88	1.90
	Leaves II	1.04	0.94	1.98
	Leaves III	0.98	0.90	1.88
<i>Dichrostachys cinerea</i>	Leaves I	1.13	0.92	2.05
	Leaves II	0.99	0.87	1.86
	Leaves III	1.18	0.89	2.07

I – Ahore

II – Bhinmal

III - Sanchore

The maximum quercetin (1.24 mg/g.d.w.) was found in leaves of *Cordia dichotoma* collected from Ahore area while minimum (0.98 mg/g.d.w.) in the leaves of *Cordia gharaf* collected from the Sanchore area (Table 1).

The maximum amount of kaempferol (0.98 mg/g.d.w.) was found in leaves of *Cordia dichotoma* collected from Bhinmal area and minimum (0.87 mg/g.d.w.) in the leaves of *Dichrostachys cinerea* collected from the same area (Table 1).

Among all the plant samples tested the total flavonoid contents were found maximum (2.20 mg/g.d.w.) in leaves of *Cordia dichotoma* collected from Ahore area and minimum (1.86 mg/g.d.w.) in the leaves of *Dichrostachys cinerea* collected from the Bhinmal area (Table 1).

Conclusion

The tree species growing in Jalore district of Rajasthan are potential source of antimicrobial principles (flavonoids). These are resistant to bacterial and fungal attacks due to presence of biologically active substances i.e. flavonoids.

These retain potentialities to synthesize the flavonoid contents which are active principles against bacterial as well as fungal pathogens. Due to presence of these secondary products the selected tree species can be used in drug and pharmaceutical industries.

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