**Flavonoid Contents from Some Medicinal Tree Species of Sikar District of Rajasthan**

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**Abstract**

Evaluation of flavonoid contents from three selected medicinal tree species growing in Sikar district of Rajasthan like *Ailanthus excelsa*, *Pongamia pinnata* and *Salvadora oleoides* was carried out. The leaves and fruits of selected trees collected from study area were analysed for flavonoid contents i.e. Quercetin and Kaempferol. These flavonoid contents were isolated and identified. The maximum total flavonoid contents (1.82 mg./g.d.w) were found in leaves of *Pongamia pinnata* while minimum (0.86 mg./g.d.w) in fruits of *Ailanthus excelsa*.

**Keywords**: Flavonoid contents, Medicinal tree species, Sikar district, Rajasthan

**Introduction**

Sikar district of Rajasthan is rich in medicinal tree species which are a good source of phytochemicals of pharmaceutical interest such as flavonoids, sterols, alkaloids, phenolic compounds, sulphides, isothiocyanates, anthocynins, terpenoids etc. These are the active principles which act as antioxidants, anticarcinogenic, antimicrobials and immunity stimulants. A number of plant species have been screened by many workers for evaluation of antimicrobial principles like flavonoids [1-9].

**Materials and Methods**

Present investigation describes the isolation, identification and quantitative estimation of flavonoid contents from leaves and fruits of three selected medicinal tree species growing in Sikar district of Rajasthan like *Ailanthus excelsa*, *Pongamia pinnata* and *Salvadora oleoides*.

Leaves and fruits of these selected tree species were collected from study area. 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 [10]. 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% H$_2$SO$_4$ 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 [11], for quercetin [12] and for kaempferol [13].

**Results and Discussion**

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

<table>
<thead>
<tr>
<th>Plants</th>
<th>Plants parts</th>
<th>Quercetin</th>
<th>Kaempferol</th>
<th>Total Flavonoid Contents</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ailanthus excelsa</strong></td>
<td>Leaves</td>
<td>0.82</td>
<td>0.56</td>
<td>1.38</td>
</tr>
<tr>
<td></td>
<td>Fruits</td>
<td>0.49</td>
<td>0.37</td>
<td>0.86</td>
</tr>
<tr>
<td><strong>Pongamia pinnata</strong></td>
<td>Leaves</td>
<td>0.92</td>
<td>0.90</td>
<td>1.82</td>
</tr>
<tr>
<td></td>
<td>Fruits</td>
<td>0.75</td>
<td>0.71</td>
<td>1.46</td>
</tr>
<tr>
<td><strong>Salvadora oleoides</strong></td>
<td>Leaves</td>
<td>0.68</td>
<td>0.74</td>
<td>1.42</td>
</tr>
<tr>
<td></td>
<td>Fruits</td>
<td>0.52</td>
<td>0.66</td>
<td>1.18</td>
</tr>
</tbody>
</table>

**Table - 1:** Flavonoid Contents (mg/g.d.w.) from Leaves and Fruits of Selected Medicinal Tree Species
The maximum quercetin (0.92 mg/g.d.w.) was found in leaves of *Pongamia pinnata* collected from while minimum (0.49 mg/g.d.w.) in the fruits of *Ailanthus excelsa* collected from study area.

The maximum amount of kaempferol (0.90 mg/g.d.w.) was found in leaves of *Pongamia pinnata* while minimum (0.37 mg/g.d.w.) in the fruits of *Ailanthus excelsa* collected from study area.

Among all the plant samples tested the maximum total flavonoid contents (1.82 mg./g.d.w) were found in leaves of *Pongamia pinnata* while minimum (0.86 mg./g.d.w) in fruits of *Ailanthus excelsa* collected from study area.

**Conclusion**

The medicinal tree species growing in Sikar district of Rajasthan are potential source of antimicrobial principles. 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 medicinal tree species can be used in drug and pharmaceutical industries.

**Acknowledgement**

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**References**
