INTRODUCTION
Humankind first utilized plant materials found in the environment on an empirical basis to cure various ailments since the days of antiquity. Plants are unlimited source of natural products. The therapeutic use of plants for the treatment of human sufferings is known. There are more than about 350 thousand species of higher plants out of which a small portion has been investigated for their biologically active constituents.

Natural products, derived from plant based are an essential feature in the health care systems of the 20% of the population residing mainly in developed countries, with more than 50% of all drugs in therapeutic use having a natural product origin\(^1\). Herbal medicine is to play an important role in future health care. A number of herbal marketers have already made, and continue to make, a substantial investment in clinical studies.

India has one of the oldest, richest and most diverse cultural traditions on the use of medicinal plants. In India the medicinal plants or herbs are used in indigenous systems of medicine, i.e. Ayurvedic, Unani and Siddha, Tibetan system of medicine, modern system of medicine and homeopathic system. Since dawn of human creation plant based remedies have always been an integral part of traditional medicine systems.

**OCCURRENCE OF FLAVONOIDS IN MEDICINAL PLANTS**

Flavonoids are polyphenolic compounds isolated from a wide variety of plants, with over 4000 individual compound known\(^2\). Flavonoids play various roles in the ecology of plants. Because of their attractive colours, flavonols, flavones, and anthocyanidins are likely to be a visual signal for pollinating insects. Catechins and other flavanols possess astringent characteristics and they act as feeding repellants, while isoflavones are important plant-protective phytoalexins\(^3\).

Due to their presence both in edible plants and in foods and beverages derived from plants, flavonoids are important constituents of the nonenergetic part of the human diet, the average intake being around 600 mg/day\(^4\). Several flavonoids are known and have been used in traditional medicine since long times. During the past two decades an increased effort in pharmacognosy has led to validating a number of these phytomedicines
for the long-term treatment of mild and chronic diseases or to attain and maintain a condition of well being\textsuperscript{5}.

The analysis of flavonoids in these medicinal plants or their extracts represents an essential part of any research involving the efficacy, the safety, and therapeutical reproducibility of preparations from these plants. Among the numerous substances identified in medicinal plants, flavonoids represent one of the most interesting groups of biologically active compounds. Approximately 40 species, from Achillea millefolium to viola tricolor, are reported to have been used as phytomedicines because of their flavonoid content\textsuperscript{6}.

In plants, flavonoids occur most often as glycosides, while free aglycones are less frequent, typically present in plants possessing secretory structures. The most common classes are flavonols, flavones and their dihydroderivatives followed by anthocyanins, flavans and isoflavones.

Some of the plants have been recently reviewed\textsuperscript{7} by German Commission E (Federal Health Agency) and ESCOP (European Scientific Cooperative for Phytotherapie) (given in Table-I). These plants are representatives of the major flavonoid classes and are considered valuable phytomedicines for different body systems: urinary, digestive, cardiovascular, nervous, and skin.

**ROLE OF FLAVONOIDS IN MEDICINAL PLANTS**

Flavonoid preparations have long been used in medical practice to treat disorders of peripheral circulation, to lower blood pressure, and to improve aquarexis. Various phytomedicines containing flavonoids are marketed in different countries as anti-inflammatory, antispasmodic, antiallergic, and antiviral remedies\textsuperscript{8}. Many of the alleged effects of pharmacological doses of flavonoids are linked to their known functions as strong antioxidants, free-radical scavengers\textsuperscript{9}, and metal chelators and their interaction with enzymes, adenosine receptors, and biomembranes\textsuperscript{10-14}.

Flavonoids have also displayed antiviral, including anti-HIV, activity. Quercetin and quercetrin exhibited significant and rutin showed promising activity against fixed rabies virus in mice\textsuperscript{15}. Quercetin was viricidal at a concentration of 100 $\mu$g/ml to human and porcine strains of herpes virus
<table>
<thead>
<tr>
<th>S.NO</th>
<th>MEDICINAL PLANT</th>
<th>FLAVONOID CLASS</th>
<th>FUNCTION</th>
<th>PARTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arnica</td>
<td>Flavonol-O-glycosides</td>
<td>Anti-inflammatory</td>
<td>Skin</td>
</tr>
<tr>
<td>2</td>
<td>Calendula Officinalis</td>
<td>Flavonol-O-glycosides</td>
<td>Anti-inflammatory</td>
<td>Skin</td>
</tr>
<tr>
<td>3</td>
<td>Crataegus</td>
<td>Flavonol-O-glycosides, flavone-C-glycosides, proanthocyanidins</td>
<td>Heart function, hypotensive</td>
<td>Heart</td>
</tr>
<tr>
<td>4</td>
<td>Ginkgo biloba</td>
<td>Flavonol-O-glycosides, Flavonol-O-glycosides, biflavonoids, proanthocyanidins</td>
<td>Anti-aggregant, antioxidant</td>
<td>Peripheral-vascular</td>
</tr>
<tr>
<td>5</td>
<td>Helichrysum italicum</td>
<td>Flavanon, flavonol, and chalcone glycosides</td>
<td>Anti-inflammatory</td>
<td>Skin</td>
</tr>
<tr>
<td>6</td>
<td>Matricaria chamomilla</td>
<td>Flavonol-O-glycosides, Flavonol-C-glycosides</td>
<td>Antispasmodic, Anti-inflammatory</td>
<td>Digestive, nervous, skin</td>
</tr>
<tr>
<td>7</td>
<td>Ononis spinosa</td>
<td>Isoflavones</td>
<td>Aquaretic</td>
<td>Urinary</td>
</tr>
<tr>
<td>8</td>
<td>Orthosiphona.</td>
<td>Methoxylated flavones</td>
<td>Aquaretic</td>
<td>Urinary</td>
</tr>
<tr>
<td>9</td>
<td>Tilia</td>
<td>Flavonol-O-glycosides</td>
<td>Sedative</td>
<td>Nervous</td>
</tr>
</tbody>
</table>
and Para-influenza virus. It has been found that flavonols are more active than flavones against herpes simplex virus type 1 and the order of importance being galangin, kaempferol and quercetin.

Flavonoids seem to play an adjuvant role towards the ginkgoloids and bilobalide, which are active platelet-activating factor (PAF) inhibitors and neuroprotective. This could explain the improved peripheral and cerebral circulation and mental performance.

The topical use of Matricaria chamomilla as an anti-inflammatory agent is based on the presence in chamomile flowers of apigenin glycosides, which inhibit 5-lipoxygenase and cyclo-oxygenase, thereby limiting the formation of pro-inflammatory leukotrienes and prostaglandins.

Study of flavonoid medicinal plants should not be restricted to controlled clinical trials for further proof of their efficacy and safety, but should also focus on their absorption, metabolism, and interaction with other components. Then it will be possible to define the real role of flavonoid medicinal plants in ameliorating health conditions and treating some diseases.

Tremendous developments in modern separation technology namely paper, TLC, column, and spectral methodology viz. UV, IR, 1H-NMR, 13C-NMR and Mass, have greatly explored a vast number of plant based active components for the isolation and structural characterization of biologically active constituents from medicinal plants.

SOME OF THE RECENTLY INVESTIGATED BIOLOGICALLY ACTIVE FLAVONOIDS

The recently isolated biological active flavonoids are listed in Table-II.
<table>
<thead>
<tr>
<th>S.No</th>
<th>Plant</th>
<th>Isolated Compound</th>
<th>Bioactivity</th>
<th>STR</th>
<th>REF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Erythrina abyssinica</td>
<td>Abyssinone-V4'-methyl ether(1) and abyssinoflavonones IV (2), V(3) and VI(4),</td>
<td>Antimicrobial</td>
<td>1-4</td>
<td>36</td>
</tr>
<tr>
<td>2</td>
<td>Daphniphyllum calycinum</td>
<td>5,6,7,4'-tetrahydroxy flavonol-3-O- rutinoside. Kaempferol-3-O-neohesperidoside</td>
<td>Antioxidant</td>
<td>5-6</td>
<td>37</td>
</tr>
<tr>
<td>3</td>
<td>Trifolium subterraneum</td>
<td>2,5,7-trihydroxy-4'-methoxy isoflavanone, 2,5,7,4'-tetrahydroxy-4'-methoxy isoflavanone, oct-1-en-3yl arabinopyranosyl-(1→6)-β-glucopyranoside, Phaselic acid (trans-caffeoyl-malic acid)</td>
<td>Insect antifeedant activity</td>
<td>7-15</td>
<td>38</td>
</tr>
<tr>
<td>4</td>
<td>Cryptolepis obtusa</td>
<td>Rutin, Quercetin-3-O-α-L-rhamnopyranoside, Quercetin-3-O-β-D-glucoside</td>
<td>Antimicrobial</td>
<td>16-18</td>
<td>39</td>
</tr>
<tr>
<td>5</td>
<td>Chenopodium species.</td>
<td>3,5,7,4'-tetrahydroxy flavone-3-7-dihydrone</td>
<td>Hypotensive</td>
<td>19</td>
<td>40</td>
</tr>
<tr>
<td>6</td>
<td>Erthospernum monticolatum</td>
<td>Quercetin-3-O-β-D-xyllosyl(1→3)-α-L-rhamnopyranoside, Quercetin-3-O-α-L-rhamnopyranoside</td>
<td>Antiinflammatory</td>
<td>20-21</td>
<td>41</td>
</tr>
<tr>
<td>7</td>
<td>Iryanthera sagotiana</td>
<td>3,5,7,3',4'-Penta hydroxy flavone-3-O-rhamnoside, 3,5,7,3',4'-tetra hydroxy flavone-3-O-rhamnoside</td>
<td>Antioxidant</td>
<td>22-23</td>
<td>42</td>
</tr>
<tr>
<td>8</td>
<td>Artocarpus heterophyllus</td>
<td>Artocarpin, Artocarpesin</td>
<td>Antibacterial</td>
<td>24-25</td>
<td>43</td>
</tr>
<tr>
<td>9</td>
<td>Waldesteinia fragarioides</td>
<td>3,5,7,3',4'-pentahydroxy flavone-3-O-β-D-glucoside</td>
<td>Antiviral</td>
<td>26</td>
<td>44</td>
</tr>
<tr>
<td>10</td>
<td>Ulex europaus</td>
<td>4'-hydroxy-5-methoxy isoflavone-7-O-β-D-glucopyranoside</td>
<td>Antiviral</td>
<td>27</td>
<td>45</td>
</tr>
<tr>
<td>S.No</td>
<td>PLANT</td>
<td>ISOLATED COMPOUND</td>
<td>BIOACTIVITY</td>
<td>STR</td>
<td>REF</td>
</tr>
<tr>
<td>------</td>
<td>------------------------</td>
<td>----------------------------------------------------------------------</td>
<td>---------------------------</td>
<td>------</td>
<td>-----</td>
</tr>
<tr>
<td>11</td>
<td>Dalbergia odorifera</td>
<td>3,3',4',6'-tetrahydroxy-7-methoxy flavone</td>
<td>Antiallergic</td>
<td>28</td>
<td>46</td>
</tr>
<tr>
<td></td>
<td></td>
<td>7,2'-dihydroxy-4'-methoxy isoflavone</td>
<td>Antiinflammatory</td>
<td>29</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>7,2'-dihydroxy-4',5'-dimethoxy isoflavone</td>
<td></td>
<td>30</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Rudbeckia bicolor</td>
<td>Eupaline, Eupatoline</td>
<td>Immunomodulating</td>
<td>31-32</td>
<td>47</td>
</tr>
<tr>
<td>13</td>
<td>Solanum melongena</td>
<td>3,5,7,3',4'-tetrahydroxy flavone-3-O-α-L-rhamnoside; Kaempferol-3-O-rutinoside</td>
<td>Antiinflammatory</td>
<td>33</td>
<td>48</td>
</tr>
<tr>
<td></td>
<td>Vicia amoea</td>
<td>Amoenin, Kaempferol, Quercetin-3-O-α-L-rhamnopyranoside</td>
<td>Hyperlipidemia and increasing</td>
<td>35-36</td>
<td>49</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Kaempferol-3,7-O-α-L-dirhamnoside.</td>
<td>micro blood vessel elasticity</td>
<td>(a&amp;b)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Helichrysum aureonitis</td>
<td>3,5,7-trihydroxy flavone</td>
<td>Antimicrobial</td>
<td>38</td>
<td>50</td>
</tr>
<tr>
<td>16</td>
<td>Prunus davidiana</td>
<td>Catechin, Prunin, Hesperin-5-O-glucoside</td>
<td>Antihyperlipidemic</td>
<td>39-41</td>
<td>51</td>
</tr>
<tr>
<td>17</td>
<td>Caralluma attenuata</td>
<td>Luteolin-4'-O-α-L-rhamnopyranosyl (1→2)-β-D-glucopyranoside</td>
<td>Antinociceptive and</td>
<td>42</td>
<td>52</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Antiinflammatory</td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>Tamarix diocia</td>
<td>5,7,3',5'-tetrahydroxy-6,8,4'-trimethoxy flavone</td>
<td>Antimicrobial</td>
<td>43(a&amp;b)</td>
<td>53</td>
</tr>
<tr>
<td></td>
<td></td>
<td>5,7,3',5'-tetrahydroxy-6,4'-dimethoxy flavone</td>
<td>Antiviral</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>5,7,2',4'-tetrahydroxy-6-methoxy flavone</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>Erythrina spp.</td>
<td>5-Deoxyglyasperin, 2'-hydroxyneobavisorflavone</td>
<td>In-vitro anti HIV</td>
<td>45-46</td>
<td>54</td>
</tr>
<tr>
<td>20</td>
<td>Millettia thonningii</td>
<td>Alpinum isoflavone</td>
<td>Tropical</td>
<td>47-48</td>
<td>55</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4'-methyl-alphinum isoflavone</td>
<td>Antipenetrant</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Achyrocline satureioides</td>
<td>Quercetin, Luteolin</td>
<td>Antinflammatory</td>
<td>49(a,b&amp;c)</td>
<td>56</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Quercetin-3-methyl ether</td>
<td>Antispasmodies</td>
<td></td>
<td></td>
</tr>
<tr>
<td>22</td>
<td>Cordia verbenacea</td>
<td>5-hydroxy-3,6',7',3',4'-Pentamethoxy flavone</td>
<td>Antiinflammatory</td>
<td>50</td>
<td>57</td>
</tr>
</tbody>
</table>
(9)

(10)

(11)

(12)

(13)
$R = \text{rhamnoside}$

(19)

$R = \text{O-xylopyranosyl (1→2) rhamnopyranoside}$

(20)

$R = \text{rhamnoside}$

(22)

(23)
(29)

(30)

(31) \[ R = \text{rhamnopyranoside} \]

(32) \[ R = \text{rhamnopyranoside} \]

(33)
(34) O-rutinoside

(35) \( R = \beta\)-mannoside

(36a) \( R_1^1 = R_2^2 = H \)
(36b) \( R_1^1 = R_2^2 = \text{rhamnoside} \)

(37a) \( R = \alpha\)-L-rhamnoside
(37b) \( R = \beta\)-D-glucoside

(38)

(39)
(40) \[ \text{R=glucoside} \]

(41) \[ \text{R=glucoside} \]

(42) \[ \text{R = } \alpha\text{-L-rhamnopyranosyl (1\rightarrow2)} \]
\[ \text{\beta\text{-D-glucopyranoside}} \]

(43a) \[ \text{R = OCH}_3, \text{R}_1=\text{R}_2=\text{CH}_3 \]
(43b) \[ \text{R = H, R}_1=\text{R}_2=\text{CH}_3 \]

(44)
(45)

(46)

(47)

(48)

(49a) $R=\text{OH}$, (49b) $R=\text{H}$, (49c) $R=\text{OCH}_3$

(50)
Thus a significant number of bioactive compounds have been isolated from various plants but still a large number of plants are left for their systematic phytochemical examinations. Therefore author thought worthwhile to carryout systematic phytochemical examination of Leguminosae plants.

**ABOUT THE LEGUMINOSAE FAMILY**

The Leguminosae family is one of the largest family of flowering plants\(^5^8\) from which a broad spectrum of complex secondary metabolites have been isolated. This family is also one of the most important from an economic point of view providing a wide range of food sources. The Leguminosae family is especially rich in flavonoidal constituents.

Earlier workers have been reported some flavonoidal constituents from Leguminosae plants which are given in **Table-III**
<table>
<thead>
<tr>
<th>S.NO</th>
<th>PLANT</th>
<th>PART</th>
<th>ISOLATED COMPUND</th>
<th>STR</th>
<th>REF</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Pterocarpus marsupium</td>
<td>Roots</td>
<td>6-hydroxy-3,5,7,4'-tetramethoxyflavone-6-rhamnoside</td>
<td>1</td>
<td>59</td>
</tr>
<tr>
<td>2</td>
<td>Dalbergia Ciromandeliliana</td>
<td>Leaves</td>
<td>Coromandin</td>
<td>2</td>
<td>60</td>
</tr>
<tr>
<td>3</td>
<td>Erythina abyssinica</td>
<td>Stembark</td>
<td>Abyssimone-v-4'-omethyl ether;</td>
<td>3</td>
<td>61</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Abyssimone flavonone (IV)</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Abyssimone flavonone (V)</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Abyssimone flavonone (VI)</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Phaseolvs trilubus</td>
<td>Seeds</td>
<td>Vitexin, Kaempferal, luteolin, Quercetin</td>
<td>7-10</td>
<td>62</td>
</tr>
<tr>
<td>5</td>
<td>Acacia nigrescens</td>
<td>Heart Wood</td>
<td>7,8,4'-trihydroxy-3-3'-dimethoxy flavone</td>
<td>11</td>
<td>63</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7,8,3',4'-trihydroxy-3-methoxy flavone</td>
<td>12</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7,8,4'-trihydroxy flavone</td>
<td>13</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Cassia angustifolia</td>
<td>Leaves</td>
<td>3,5,7,4'-tetrahydroxy-3-O-β-glucoside</td>
<td>14</td>
<td>64</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>isorhamnetin-3-O-β-glucoside</td>
<td>15</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Hymenaea courbarli</td>
<td>Leaves</td>
<td>5,7,3',4'-tetrahydroxy flavonol-3-O-rhamnoside</td>
<td>16-17</td>
<td>65</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Epicatechin</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Lupinus leteus &amp; L-polyphylus</td>
<td>Leaves</td>
<td>8 e-glucopyranosyl genistein-4' O-glucopyranoside</td>
<td>18</td>
<td>66</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5-O-methyl genistein-7,4' O-digluco pyranoside</td>
<td>19</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2'-hydroxy genistein-7,4' O-digluco pyranoside</td>
<td>20</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Dalbergia staipulacea</td>
<td>Leaves</td>
<td>Luteolin-4'-rutinoside</td>
<td>21</td>
<td>67</td>
</tr>
<tr>
<td>10</td>
<td>Butea monosperma</td>
<td>Stems</td>
<td>8 C-Prenyl quercetin-7,4'-di-O-methyl-3-O-α-L-rhamnopyranosyl (1→4)-α-L- rhamnopyranoside</td>
<td>22</td>
<td>68</td>
</tr>
<tr>
<td>11</td>
<td>Erythrina senegalensis</td>
<td>Stem bark</td>
<td>Erthyrinase galensis (B)</td>
<td>23</td>
<td>69</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Erthyrinase galensis (C)</td>
<td>24</td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Petalostemon purpureus</td>
<td>Roots</td>
<td>Petalopurpureanol; Petalostemumol</td>
<td>25-26</td>
<td>70</td>
</tr>
</tbody>
</table>
R=rhamnoside

(1)

R=apiose+glucose

(2)

(3)

(4)
(5)

(6)

(7)  $R = \text{H}$

(8)  $R = \text{rutinoside}$

(9)
(10) \( R=R_1=\text{OCH}_3, R_2=\text{H} \)
(11) \( R=\text{OCH}_3, R_1=\text{OH}, R_2=\text{H} \)
(12) \( R=R_1= R_2=\text{H} \)

(14) \( \text{o-glucoside} \)
(15) \( \text{o-glucoside} \)
(16) \( \text{o-rhamnoside} \)
(17) 
(18) \( \text{o-glucoside} \)
R = glucopyranoside

(19)

R = glucopyranoside

(20)

R = rutinoside

(21)

R = \(\alpha\)-L-rhamnopyranoside (1→4)-\(\alpha\)-L-rhamnopyranoside

(22)

(23)
(24)

(25)

(26)
Thus a deep sweep in the available literature showed that there is still enough scope for further systematic phytochemical examinations of biologically active constituents of following Leguminosae plants.

1. Bauhinia variegata Linn.
2. Abrus precatorius Linn.
3. Albizia julibrissin Durazz.

1. BAUHINIA VARIEGATA Linn\textsuperscript{71-73}

*Bauhinia variegata* Linn belongs to Leguminosae family, which is known as 'Kachnar' in Hindi.

**DISTRIBUTION**

It is distributed in sub-Himalayan tract and Outer Himalaya of the Punjab, ascending to 4,000 ft from the Indus eastwards, Kumaon between 1,000-6,000ft. It is also found in the eastern, central and south India. It is medium sized deciduous tree.

Its bark is dark brown, nearly smooth, young shoots brown pubescent. Its leaves are 10-15 cm. long, as broad as or rather broader than long, cleft $\frac{1}{4}$ to $\frac{1}{3}$ of the way down into 2 obtuse lobes, pubescent beneath, petiole 2.5-3.8 cm long. Flowers are large, fragrant, white or purplish, appearing when the tree is leafless. Its Calyx is grey-tomentose, tube slender, 1.3-2.5 cm. long, limb spathaceous, as long as the tube, 5-toothed at the apex, Petals are 5-6.3cm long, obovate, with long rather broad claws, all white or 4 petals pale purple and the fifth darker with dark purple veins. Pod is 15-30 by 1.8-2.5 cm. hard, flat, dehiscent, on a glabrous stipe 2.5 cm. long and seeds 10-15.
MEDICINAL IMPORTANCE

The bark is astringent to the bowels, tonic to the liver. It cures bilousness, leucoderma, leprosy, dysmenorrhoa, menorrhagia, impurities of the blood, tuberculous glands, asthma, wounds and ulcers. It is also used as a gargle in stomatitis. The buds are acrid, indigestible and used in piles, cough, eye diseases and liver complaints, astringent to the bowels, styptic in haematuria and menorrhagia. Its bark is also used with ginger as an internal remedy for scrofula. The root is prescribed in combination with other drugs in the treatment of snake-bite. The dried buds are used in piles and dysentery.

2. ABRUS PRECATORIUS Linn\textsuperscript{71-73}

\textit{Abrus precatorius Linn} belongs to Leguminosae family. It is known as "Ghungchi" in Hindi.

DISTRIBUTION:

It is found throughout India, even at attitudes up to 3, 500 ft. on the outer Himalayas. It is now naturalized in all tropical countries. It is a deciduous dextrorse climber, with slender flexible and tough branches, the stem attaining 4.5 m.high and 1.2 cm diameter. Its leaves are 5-10 cm. long, paripinnate. Its flowers are 1-1.25 cm long, pink, clustered on tubercles arranged along the rhachis of a one-sided, usually leaf-bearing, axillary, pedunculate raceme 5-10 cm. long. The Pod is 2.5-4.3 by 1-1.25 cm., turgid, thinly pubescent with a sharp deflexed beak. The seeds are 7.5 cm long, scarlet with a black spot at the hilum, polished.

MEDICINAL IMPORTANCE

The Ayurvedic system of medicine describes that the root and leaves of this plant are sweetish. Its fruit is bitter, acrid, aphrodisiac,
causes "Kapha". The fruit is also useful in eye diseases, cures leucoderma, itching, skin diseases, wounds. The root and leaves are also used in the treatment of fevers, asthma, tuberculous glands and caries of the teath.

According to Unani system of medicine, its fruit is used as tonic to the brain and the body and aphrodisiac. Its root is considered emetic and alexiteric. The water extract of the root is useful in relieving obstinate coughs. The juice of the fresh leaves mixed with some bland oil and applied externally, seems to relieve local pain. The seeds are used as a purgative, but in large doses are an acrid poison, given rise to symptoms resembling those of cholera and often used for killing cattle.

3. **ALBIZZIA JULIBRISSIN Durazz**\(^{71-72}\)

*Albizzia julibrissin Durazz* belongs to Leguminosae family. It is commonly known as 'Lalsiris' in Hindi.

**DISTRIBUTION:**

It is found in outer Himalaya from the Indus eastwards to Si-kkim ascending to 6,000-7,000 feet East and Central Asia, China, Japan and Abyssinia.

It is a medium sized tree; bark dark grey, nearly smooth, young shoots and inflorescence clothed with yellowish brown pubescence. Its rhachis is 10-25 cm. long, with a large gland on the petiole 1.3-2.5 cm. from the base and sometimes 1 or more between the upper pairs of pinnae; its leaflets contain 10-30 paris, 1.3-1.8 by 0.4-0.6cm, falcate-oblong, acute, oblique, dark green above, pale beneath, more or less adpressed hairy on both sides midrib close to the upper edge, subsessile.
Its flowers are pink (rarely creamy) in peduncled heads, solitary or in fascicles of 2-3 arranged in a short terminal raceme, peduncles 3.8-7.5 cm. long; bracts 4-7.5 m.m. long, linear, caducous; and pedicels are 1.25 mm. long. Its Calyx is 4 mm. long, tubular, pubescent, teeth short, triangular. Its stamens are 2.5-3.3 cm. long, staminal tube about as long as the corolla-tube.

**MEDICINAL IMPORTANCE**

According to Ayurvedic system of medicine, the root of this plant is used in hemicrania. The bark is bitter, cooling, alexiteric, anthelmintic cures "Vata" diseases of the blood, and also used in leucoderma, itching, skin diseases, piles. The leaves are good for opthalmia. Its flowers are used in the treatment of asthma, snake-bite. Unani system of medicine describes that the bark of this plant is useful in leprosy, scabies, syphilis and paralysis. It is also used to strengthens the gums and the teeth and relieves toothache. It seeds are used for gonorrhoea, tuberculous glands and as tonic to the brain.

Earlier workers have isolated several compounds from above these plants, which are listed in **Table-IV.**
<table>
<thead>
<tr>
<th>S. No</th>
<th>Plant</th>
<th>Part</th>
<th>Isolated compounds</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Bauhinia variegata</td>
<td>Leaf</td>
<td>Aluminiumfabrication(^{74})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>Seed</td>
<td>Minor oils of fatty acid(^{75})</td>
</tr>
<tr>
<td>2</td>
<td>Abrus precatorius</td>
<td>Seeds</td>
<td>Free amino acids.(^{76})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Indoles, N-methyl tryptophan(^{77})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Iodine-131(^{78})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>N,N-dimethyl tryptophan,</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Methocation(I) and Precatorine(II)(^{79})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>N-methyl triptophane,</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Hypaphorine and Precatorine(^{80})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Lectin and Abrin(^{81})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Indole acetic acid(^{82})</td>
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<td></td>
<td>--do--</td>
<td>--</td>
<td>Agglutinins(^{83})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Methionine lysine and Tryptophan(^{84})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Triterpene glycoside (III) &amp; (IV)(^{85-86})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Glycyrrhizin(^{87})</td>
</tr>
<tr>
<td>3</td>
<td>Albizzia julibrissin</td>
<td>Leaf</td>
<td>Nyctinastic(^{88})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>Leaf let</td>
<td>Nyctinasty(^{89}), Acetyl choline(V)(^{90})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Potassium-linked fluoride fluxes(^{91})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>Stem &amp; leaves</td>
<td>Hydro cyanic acid(^{92})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>Stem &amp; bark</td>
<td>3', 4', 7-trihydroxy flavone(^{93})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>(\alpha)-spinasteryl-D-glycoside, Acacigenin</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>--</td>
<td>Machaerin acid lactone(^{94})</td>
</tr>
<tr>
<td></td>
<td>--do--</td>
<td>Heart Wood</td>
<td>4,6-dimethoxy pthalide, (+)-pinitol,</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>(\alpha)-Spinaterd, (\alpha)-Spinasterone(^{95})</td>
</tr>
</tbody>
</table>
R\(^1\) = β-D-glucosyl, R\(^2\) = H

I. R = β-D-gluc

II. R = β-D-gluc, A-6-Me\(^2\)-β-D-gluc

III. R = β-D-gluc\(^1\)-α-β-D-gluc

IV. R = β-D-gluc, A\(^2\)-6-Me\(^2\)-β-D-gluc

V. R = H
PROBLEM TAKEN AND WORK DONE

Since growth of civilization human is depending on plants. The plant derived products are the greatest gift of nature for the service of mankind. Plants have been used as medicine for curing various diseases by human beings since primitive days.

A number of multifarious physiological and pharmacological active components have been isolated from the plants in the field of medicinal science. Besides the use of these biologically active therapeutic agents, a large number of diseases and causes are still unconquered.

Therefore, adequate knowledge about plants is essential for the country like India where the medicinal flora is rich in diversity and endemism therefore author took up the challenging task to investigate the following plants with a view to isolate and elucidate bioactive flavonoidal constituents of greater therapeutic profile and his findings are summarized below.

1. Bauhinia variegata Linn.
2. Abrus precatorius Linn.
3. Albizzia julibrissin durazz.
CHAPTER 2

ISOLATION AND STUDY OF A NEW FLAVONE GLYCOSIDE: 5-HYDROXY-7,3',4',5'-TETRAMETHOXY FLAVONE-5-O-β-D-XYLOPYRANOSYL (1→2)-O-α-L-RHAMNOPYRANOSIDE FROM THE SEEDS OF BAUHINIA VARIEGATA LINN.

This chapter incorporates with the isolation and structural elucidation of a new flavone glycoside (KM) obtained from acetone soluble fraction of the ethanolic extract of the seeds of Bauhinia variegata Linn. The compound (KM) (0.0182%) had molecular formula C_{30}H_{36}O_{15}, m.p. 252-253°C, [M]^+ 636 (EIMS). Its structure was established as 5-hydroxy-7,3',4',5'-tetramethoxy flavone-5-O-β-D-xylopyranosyl (1→2)-O-α-L-rhamnopyranoside on the basis of various colour reactions, alkaline degradations and spectral techniques.

![Chemical Structure](image)

CHAPTER 3

ISOLATION AND STUDY OF A NEW FLAVONOL GLYCOSIDE:3,4'-DIHYDROXY-7,3',5'-TRIMETHOXY FLAVONE-3-O-β-D-GALACTOPYRANOSYL (1→4)-O-α-L-XYLOPYRANOSIDE FROM THE SEEDS OF ABRUS PRECATORIUS LINN.

A new flavonol glycoside (MM) (0.0165%) obtained from chloroform soluble fraction of the ethanol extract of the seeds of this plant which had molecular formula C_{29}H_{34}O_{16}, m.p. 260-262°C and [M]^+ 638 (EIMS). Its structure has been characterised as 3,4'-dihydroxy-7,3',5'-trimethoxy,
flavone-3-O-β-D-galactopyranosyl (1→4)-O-α-L-xylopyranoside by various chemical degradations, colour reactions and spectral analysis.

CHAPTER-4

ISOLATION AND STUDY OF A NOVEL FLAVONE GLYCOSIDE: 5,7,8-TRIHYDROXY-3-METHOXY FLAVONE-8-O-[(E)-2-METHYL BUTENOATE]-7-O-β-D-GLUCOPYRANOSYL (1→4)-O-α-L-RHAMOPYRANOSIDE FROM THE BARK OF ALBIZZIA JULIBRISIN DURAZZ.

This chapter includes the isolation and structural elucidation of a novel flavone glycoside (MS) (0.024%) molecular formula C\textsubscript{33}H\textsubscript{38}O\textsubscript{16}, m.p. 254-256\textdegree C and [M]+ 690 (EIMS), obtained from the ethyl acetate soluble part of ethanolic extract of bark of this plant. Its structure has been determined as 5,7,8-trihydroxy-3-methoxyflavone-8-O-[(E)-2-methyl butenoate]-7-O-β-D-glucopyranosyl (1→4)-O-α-L-rhamnopyranoside by various spectral data, chemical degradations and colour reactions.
CHAPTER-5

ISOLATION AND STUDY OF A NEW FLAVONOL GLYCOSIDE: 3,5,4'-TRIHYDROXY-7,3'-DIMETHOXY FLAVONE 3-O-β-D-GLUCOPYRANOSYL(1→4)-O-α-L-XYLOPYRANOSIDE FROM THE SEEDS OF ALBIZIA JULIBRISSIN DURAZZ.

A new flavonol glycoside (BS) (0.018%) molecular formula C_{28}H_{36}O_{16}, m.p. 212-214°C and [M]^+ 624 (EIMS), isolated from the chloroform soluble fraction of ethanolic extract of this plants. On the basis of various colour reactions, alkaline degradations and spectral techniques, its structure was identified as 3,5,4'-trihydroxy-7,3'-dimethoxy flavone-3-O-β-D-glucopyranosyl (1→4)-O-α-L-xylopyranoside.

CHAPTER-6

ANTIMICROBIAL ACTIVITY OF THE VARIOUS COMPOUNDS ISOLATED FROM PLANTS.

Antibacterial and antifungal activity of the compounds of the seeds of Abrus precatorius Linn, Albizia julibrissin Durazz and bark of Albizia julibrissin Durazz were performed on broad spectrum various bacteria and fungi using filter paper disc diffusion plate method with chloramphenicol and streptomycin as standard drugs and the growth of inhibition in millimeters was determined.
REFERENCES


