MASS-SPECTRAL ANALYSIS OF PIGMENTS FROM ARDISIA MACROCARPA WALL

Ardisia macrocarpa Wall (Myristicaceae), a high altitude plant, has been studied for the active principles and isolation of Rapanone (I) and a Leucoanthocyanidin 3, 4, 5, 7, 3', 4', 5'-hepta-hydroxy flavan has been reported\(^1\). The identity of the quinone as Rapanone (I) has been established by comparison of I.R., U.V. spectra of the samples of rapanone obtained from Connorus mononcarpus.\(^2\)

Connorus mononcarpus yielded a mixture of quinones. whose mass-spectral analysis has been reported\(^3\). It has been shown to be a mixture of Homo-rapanone (III), Rapanone (I), Embelin (II), and Homo-embelin (IV). This prompted us to study the composition of the pigment obtained from Ardisia macrocarpa Wall to clarify whether the composition of the mixture is alike or different from that obtained from Connorus mononcarpus.

Wood chippings of Ardisia macrocarpa Wall, obtained from Nepal, have been extracted and the quinone has been purified by thick-layer chromatography on silica gel using chloroform, methanol (9:1) as eluent. Rapanone which has been suspected to be a mixture has been analyzed mass-spectrometrically, while TLC showed no separation from the authentic sample. The observation of M, (M+1), and (M+2) peaks are in agreement with the data reported\(^3\).

\[
\begin{align*}
\text{I} & \quad R = C_{12}H_{28}H_2+ \\
\text{II} & \quad R = C_{14}H_{28}H_4+ \\
\text{III} & \quad R = C_{16}H_{26}H_2+ \\
\text{IV} & \quad R = C_{16}H_{26}H_4+
\end{align*}
\]

Rapanone is the major component of the quinone isolated both from Connorus mononcarpus and Ardisia macrocarpa Wall. Mass-spectral data of Connorus mononcarpus recorded a peak intensity of 90.2 for M+ of Embelin, while that of pigment from Ardisia macrocarpa Wall recorded only 2.3 while that of M of rapanone being 100 in both cases. Mass-spectral data of sample under study indicated the presence of Homo-rapanone (III) (M+, 350 7.8%), Rapanone (I) (M+, 322 100%). Embelin (II) (M+, 294 2.3%) and the side chain fragments are C_{11}H_{26}+ (197), C_{12}H_{28}+ (169), C_{16}H_{26}+ (141). Mass-spectrum showed an intense peak at M/e 153 (70.2%) which could be attributed to the residue (V).

The pigment isolated from Ardisia macrocarpa Wall showed the absence of Homo-embelin (IV), while it is found along with Rapanone (I), Embelin (II) and Homo-rapanone (III) in the sample isolated from Connorus mononcarpus.\(^3\)

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CHEMICAL EXAMINATION OF THE FATS FROM THE SEEDS OF PHASEOLUS SPECIES

LEGUMINOSAE is one of the families of plants, seed fats of which contain rarer or higher saturated acids\(^4\). Phaseolus trilobus (Mungani) and Phaseolus aconitifolius (Moth) are the species of Leguminosae family belonging to Podilionaceae sub-family. Their seeds come under pulses, and due to high protein content are used as food.

The fats from the seeds of Phaseolus trilobus and Phaseolus aconitifolius were extracted with 60-80° petroleum ether. The various chemical constants of the fats were determined by standard methods\(^5\). The physical and chemical constants are tabulated in Table I.

<table>
<thead>
<tr>
<th>Physical and chemical constants</th>
<th>Phaseolus trilobus</th>
<th>Phaseolus aconitifolius</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of fat</td>
<td>5.2</td>
<td>4.8</td>
</tr>
<tr>
<td>Specific gravity</td>
<td>0.912</td>
<td>0.931</td>
</tr>
<tr>
<td>R.M. value</td>
<td>8.2</td>
<td>7.9</td>
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<tr>
<td>Polenske No.</td>
<td>1.5</td>
<td>1.6</td>
</tr>
<tr>
<td>Saponification value</td>
<td>185</td>
<td>105</td>
</tr>
<tr>
<td>Iodine value</td>
<td>44</td>
<td>65</td>
</tr>
<tr>
<td>Thio-cyanogen value</td>
<td>57</td>
<td>72</td>
</tr>
<tr>
<td>Acid value</td>
<td>27</td>
<td>25</td>
</tr>
<tr>
<td>Acetyl value</td>
<td>65</td>
<td>61</td>
</tr>
</tbody>
</table>

\(^3^\) I.R., paper chromatography, T.L.C. methods were used to determine the fatty acid composition of the fats qualitatively by comparing with standard.