

## Cytotoxic Fatty Acid Glycerides from the Seeds of *Psoralea Corylifolia*

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The seeds of *Psoralea corylifolia* Linn. (Fabaceae) have been used extensively as a remedy for leucoderma and Vitiligo<sup>1-3</sup>. A number of compounds have been isolated from the seeds like furocoumarins, chalcones, flavonoids, terpenoids etc.<sup>2,3</sup>. We have reported the cytotoxic and antitumour properties of the hexane extract of the seeds of *P.corylifolia*<sup>4,5</sup>. The present investigation reports the identification of a number of fatty acid glycerides by GC analysis from the hexane extract seed of *P.corylifolia*.

The seeds of *P.corylifolia* were purchased from the herbal drug store and authenticated by Dr.N.Mohanan, plant taxonomist of the Institute. A sample of the seeds was deposited at the seed bank of the Institute (Accession No.2784 of 1993). The seed powder (100 gms) was exhaustively extracted with 500 ml hexane in Soxhlet for 24h. The resultant extract was evaporated in *vacuo* to yield 5 gm of a crude brownish oily residue referred to as seed extract (SE). The SE was chromatographed on silica gel column to obtain 115mg of the cytotoxic fraction in ether : acetone (95:5). This is the active fraction (AF).

AF(1gm) was saponified with alcoholic KOH and then acidified. The free acids formed were extracted with petroleum ether and the solvent removed under vacuum. The free acid mixture was esterified by refluxing with methanol containing con. H<sub>2</sub>SO<sub>4</sub>. The methyl esters thus obtained were purified and injected into the GC column (Shimadzu GC-

7A, Japan) and identified by comparing the retention times with known standard obtained from Sigma, USA.

GC analysis showed the presence of methyl esters of lauric acid (0.2%), myristic acid (0.13%), palmitic acid (22.07%), linoleic acid (67.7%), oleic acid (3.33%) and stearic acid (0.52%), besides 3 unidentified methyl esters. (Fig.1).

Thus the AF of *P.corylifolia* seeds, possessing significant cytotoxic properties consisted of a number of fatty acid glycerides.

There is considerable evidence of fatty acids being toxic to a variety of cancer cells<sup>4,6,7</sup>. The present study showed the AF of *P.corylifolia* contained linoleic acid (67%) which is reported to have potent antitumour properties<sup>6,8</sup>. Zhu *et al*<sup>6</sup> reported that linoleic acid caused significant alteration of fatty acid composition of tumour cell lipids, thus causing their death. Therefore, it is tempting to assume that linoleic acid is responsible for the antitumour effect of *P.corylifolia* AF.

Thymidine incorporation studies at our laboratory<sup>5</sup> had shown that the mechanism of action of *P.corylifolia* AF is by inhibiting DNA synthesis of the tumour cells<sup>5</sup>. Perhaps this may be only one of the several mechanisms of action of the AF, while several others mechanisms may be operating, culminating in the significant cytotoxic and antitumour effects of the AF. Further detailed studies on the AF are in the progress in our

laboratory to pinpoint the extract mechanism of action of *P.corylifolia* AF in tumour inhibition.

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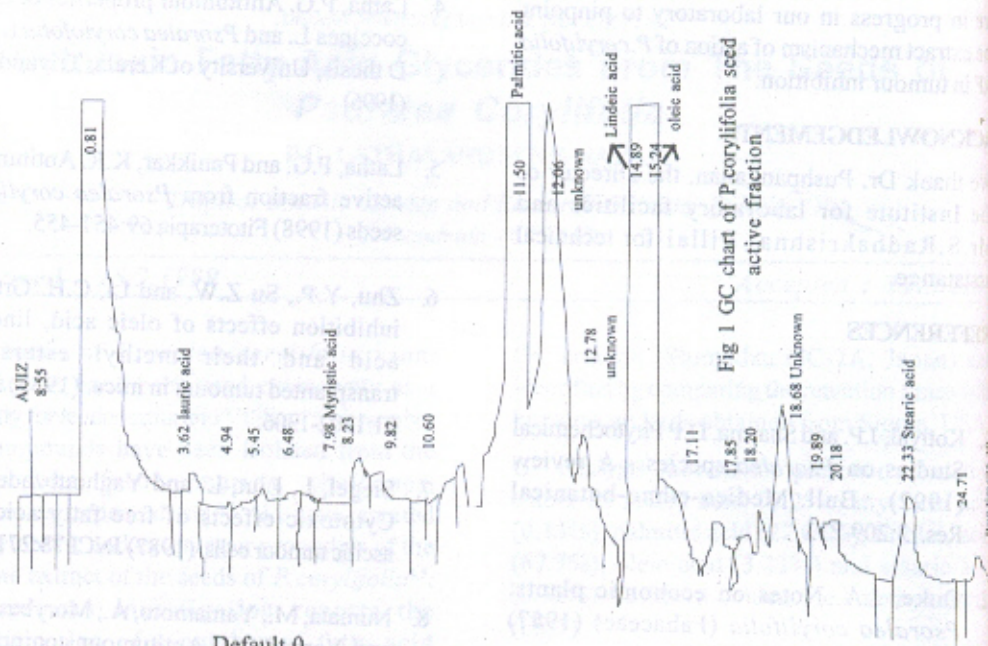


Fig 1 GC chart of P.corylifolia seed active fraction

Default 0  
Normalization Method using Area

Time	Height	Area		%Area
0.22	25	399	P	0.0024687
0.33	17	248		0.0018060
0.81	305827	6633796		46.3095365
3.62	115	1579		0.0114988
4.94	81	3048	P	0.0221965
5.45	70	1905		0.0138728
6.48	57	1237		0.0090082
7.98	317	10442	P	0.0760421
8.23	232	7494		0.0545738
9.82	47	1833		0.0133485
10.60	88	1821		0.0132611
11.50	32958	1567253		11.4132641
12.06	5236	215302	S	1.5679016
12.78	1057	29121	S	0.2120689
14.89	89775	4808176		35.0147569
15.24	14637	236979	S	1.7257608
17.11	467	45102	P	0.3284479
17.85	1291	3477	SP	0.0253206
18.20	304	8993	S	0.0654900
18.68	1966	73809		0.5375019
19.89	374	16225	P	0.1181559
20.18	392	20287		0.1477367
22.33	749	37765		0.2750174
24.71	96	5625		0.0409631
Total		13731856		100.0000000

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