

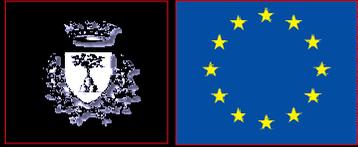
From Medicinal Plants to Bioactive Drugs

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AIM: Official plants represent an important source of medicinal products for more than 80% of the world's population, especially in developing countries. The interest for medicinal plants and for their biologically active derivatives has increased in recent years, in relation to the possible development of novel potential drugs.

The aim of our study was to analyze the antiproliferative activity effects on human tumor cell lines and the differentiating activity on human erythroleukemic K562 cells of different extracts derived from medicinal plants of Bangladesh and Lebanon¹⁻⁴.

Antiproliferative activity on K562 cells

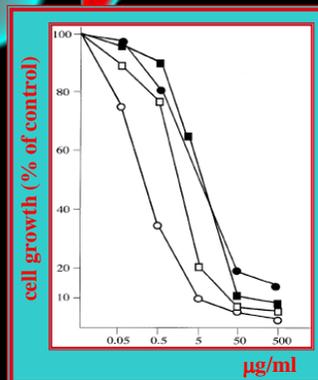
Medicinal plant

IC₅₀ K562 (µg/ml)

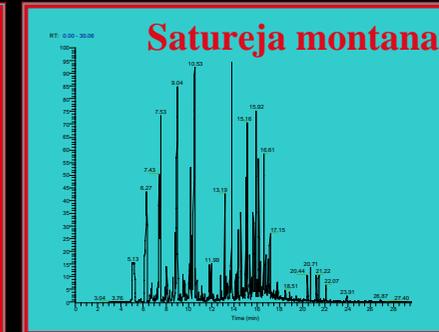
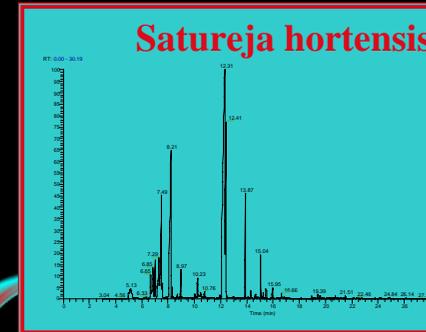
<i>Emblica officinalis</i>	0.40 ± 1.3
<i>Aegle marmelos</i>	48.21 ± 8.2
<i>Satureja hortensis</i>	85.40 ± 2.4
<i>Satureja montana</i>	56.15 ± 6.2
<i>Pistacia palaestina</i>	54.80 ± 18.0

Inhibitory effects of *Emblica officinalis* on human tumor cell lines:

K562 (open circles)
HEL (closed circles)
Jourkat (open squares)
Raji (closed squares)



RESULTS: All the extracts showing interesting biological effects were therefore analyzed by a GC/MS system in order to correlate the biological activity of the crude samples with specific identified molecules.



*Emblica officinalis*¹ demonstrated a very high antiproliferative activity and successively pyrogallol was identified as responsible for this activity (IC₅₀: 10-30 µM). In *Satureja montana* and *hortensis*³, we found caryophyllene and α-terpineol (98.0 ± 0.7 µM and 75.0 ± 1.5 respectively), both showing important antiproliferative effects on K562 cells. *Aegle marmelos*² and *Pistacia palaestina*⁴ were studied also for their ability in inducing erythroid differentiation of K562 cells and we identified a potent agent in *A. marmelos*, the 5-methoxy-psoralen (Bergapten). Our study suggests that the identified active derivatives deserve further evaluations as molecules inhibiting proliferation in tumor cells and in inducing erythroid differentiation.

1. Khan, MTH et al. *Int. J. Oncol.* 20, 187-192 (2002)

2. Lampronti, I. et al. *Phytomedicine.* 10, 300-308 (2003)

3. Lampronti, I. et al. *Int. J. Oncol.* Submitted for publication (2005)

4. Lampronti, I. et al. *Minerva Biotechnologica,* 17, 153-158 (2005)