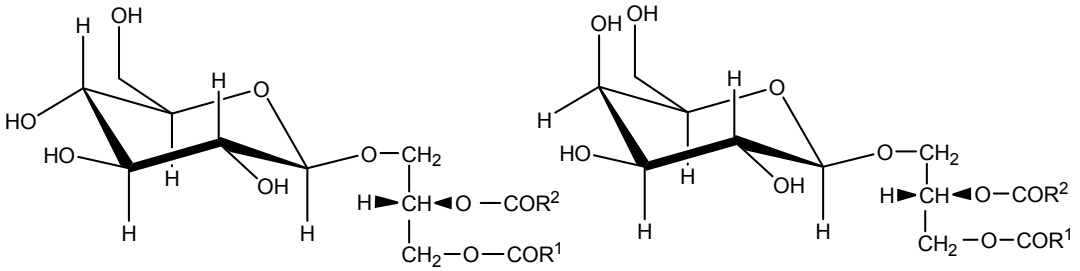
EXTRACTION AND SYNTHESIS OF MONOGALACTOSYL AND MONOGLUCOSYL DIACYLGLYCEROLS ISOLATED FROM EUPHORBIACEAE.

Francesca Cateni[a], Paolo Bonivento[b], Fabiana Frausin[c], Giuseppe Procida[b], L. Gabrielli Favretto[a], Vito Scarcia[c], Marina Zacchigna[a], Jelena Zilic[a]

[a)] Department of Pharmaceutical sciences, University of Trieste, P.zle Europa,1, 34127-Trieste (Italy).
[b)] DEMREP, University of Trieste, Via Valerio 6, 34127-Trieste (Italy).
[c)] Department of Biomedical Sciences, University of Trieste, Via Giorgieri 7, 34127-Trieste (Italy).

Monogalactosyl and monoglucosyl diacylglycerols (MGDG), a class of glycolipids, which were identified as anti-inflammatory active components in various species of Euphorbiaceae, were synthesized [1,2]. In particular, monogalactosyl diacylglycerols are the major constituents of the chloroplast membrane in the plant kingdom and have attracted much attention in recent years because of their biological activities, such as anti-tumor-promoting activity, DNA polymerase inhibition, activity of violaxanthin de-epoxidase in liposomes and haemolytic activity.



R^1, R^2 = Acyl residue

Besides, it was recently shown that glycoglycerolipid analogues have a promising inhibitory effect on Epstein-Barr virus early antigen (EBV-EA) activation induced by the tumour promoter 12-O-tetradecanoylphorbol-13-acetate (TPA). Thus, we focused our studies on in vitro structure-activity relationships in an effort to gain some insight into the action mechanism. In particular, analogues of both the glucose and the galactose series, bearing the some acyl residues and a short-medium length fatty acid acyl chain at the 3-position of the glycosyl-glycerol skeleton, shorter than chains present in natural compounds, have been synthesized and have shown an interesting in vitro inhibitory activity against KB and IMR-32 cell lines.

1] F. Cateni, J. Zilic, G. Falsone, B. Kralj, R. Della Loggia, S. Sosa; *Pharm. Pharmacol. Lett.*, 2, 53-57 (2001).

2] F. Cateni, G. Falsone, J. Zilic, P. Bonivento, M. Zacchigna, D. Zigon, S. Sosa, G. Altinier *Arkivoc*, (v), 54-65 (2004).