

604/E2

Lupeol acetate as a prodrug in wound healing

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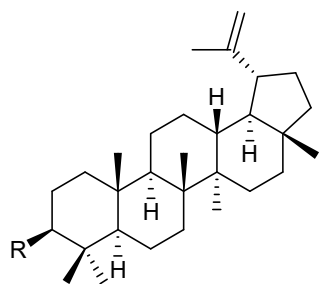
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Lupeol was shown to be active in healing wounds on animal cell culture models, Madin-Darby Canine Kidney (MDCK) cells and Baby Hamster Kidney (BHK-21) cells while lupeol acetate was found to be significantly less active under the same conditions. It was also observed that lupeol acetate was capable of increasing wound healing activity with time in both cell lines. Prompted by this observation we investigated whether lupeol acetate acts as a pro-drug being hydrolyzed into lupeol in the vicinity of the wound. Lupeol acetate was incubated in the presence of cells with a wound and in the absence of cells and the medium was tested for the presence of lupeol by Thin Layer Chromatography (TLC) with time while simultaneously monitoring the wound healing activity using scratch wound assay (SWA). Asiaticoside, a potent wound healing agent was used as the positive control. The widths of the wounds at different time intervals (0 h, 24 h, 36 h, and 48 h) were measured and the percentage wound closure calculated.



Lupeol R = OH

Lupeol acetate R = OAc

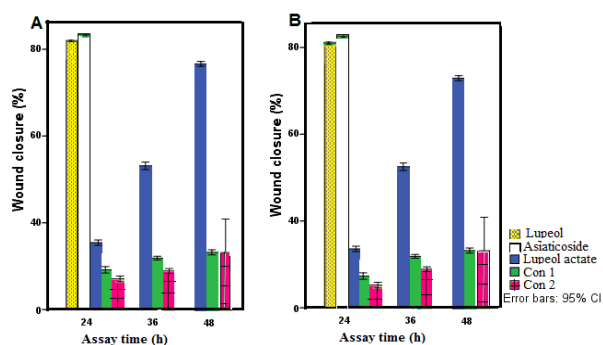


Fig. 1: % wound closure in the presence of lupeol acetate with time compared with lupeol and asiaticoside. (A) BHK cell line. (B) MDCK cell line.

SWA results confirmed that lupeol acetate increased the wound healing activity with time (Fig.1) while comparative TLC examination of the two assay media revealed that, lupeol acetate has been hydrolyzed to give lupeol in the presence of the cells while no change has occurred in the absence of cells. Thus, it can be concluded that lupeol acetate act as a pro-drug in the vicinity of cells by producing lupeol at a low concentration.

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