



## Galbanic acid inhibits migration and adhesion of melanoma cancer cells by repression of matrix metalloproteinases 2 and 9 activity

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**Statement of Problem:** Melanoma is the most aggressive form of skin cancer and cell metastasis is the primary cause of patient death. Natural products are increasingly looked upon as a valuable alternative or a support for synthetic drugs in cancer chemoprevention and therapy. Galbanic acid (GA) is a sesquiterpene coumarin, with several pharmacological effects such as cancer treatment and prevention.

**Research Purpose:** In this study, for the first time, we investigated the anticancer and antimetastatic activity of GA in B16F10 melanoma cells

**Research Method:** The effects of GA on the survival rate of B16F10 cell line was measured using the AlamarBlue assay. Wound healing migration assay and adhesion assay were determined the effect of GA on migration and cell adhesion, respectively. MMP-2 and MMP-9 activities were analyzed by gelatin zymography assay.

**Results and Conclusion:** Galbanic acid indicated cytotoxic activity toward melanoma cancer cells with no effect on normal mouse fibroblast L929 cells. The results also showed GA inhibited in vitro migration and adhesion of melanoma cells after 24- and 48-hours incubation. Furthermore, the results of gelatin zymography indicated that GA suppressed MMP-2 and MMP-9 enzymatic activity. In conclusion, Galbanic acid inhibited migration and adhesion of melanoma cancer cells by possibly inhibitory effects on MMP-2 and MMP-9 activity.

**Keywords:** Adhesion, Galbanic acid, Matrix metalloproteinase, Melanoma cancer, Migration