Anti-tumour promoting activity and antioxidant properties of girinimbine isolated from the stem bark of Murraya koenigii S.

ABSTRACT

Girinimbine, a carbazole alkaloid isolated from the stem bark of Murraya koenigii was tested for the in vitro anti-tumour promoting and antioxidant activities. Anti-tumour promoting activity was determined by assaying the capability of this compound to inhibit the expression of early antigen of Epstein-Barr virus (EA-EBV) in Raji cells that was induced by the tumour promoter, phorbol 12-myristate 13-acetate. The concentration of this compound that gave an inhibition rate at fifty percent was 6.0 μg/mL and was not cytotoxic to the cells. Immunoblotting analysis of the expression of EA-EBV showed that girinimbine was able to suppress restricted early antigen (EA-R). However, diffused early antigen (EA-D) was partially suppressed when used at 32.0 μg/mL. Girinimbine exhibited a very strong antioxidant activity as compared to α-tocopherol and was able to inhibit superoxide generation in the 12-O-tetradecanoylphorbol-13-acetate (TPA)-induced differentiated premyelocytic HL-60 cells more than 95%, when treated with the compound at 5.3 and 26.3 μg/mL, respectively. However girinimbine failed to scavenge the stable diphenyl picryl hydrazyl (DPPH)-free radical.

Keyword: Murraya koenigii; Girinimbine; Anti-tumour promoting activity; Antioxidative; Superoxide.