عنوان مقاله:

Histone deacetylase inhibitory and cytotoxic activities of the constituents from the roots of three species of Ferula

محل انتشار:

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خلاصه مقاله:

Objective(s): Histone deacetylase inhibitory and cytotoxic activities of 18 naturally occuring terpenoids (ferutinin, stylosin, tschimgine and guaiol), coumarins (umbelliprenin, farnesiferone B, conferone, feselol, ligupersin A, conferdione, conferoside) and sulfur-containing derivatives (latisulfies A-E, persicasulphides A and C) from the roots of three species of Ferula (Ferula latisecta, Ferula ovina and Ferula flabelliloba) were evaluated.Materials and Methods: The cytotoxic activity of compounds was evaluated against human cancer cell lines (HeLa, HCT116, A2780 and A549) by AlamarBlue® assay using vorinostat as the positive control. On the other hand, we aimed to evaluate their inhibitory activities against pan-HDAC.Results: The methanolic extract of the roots of F. flabelliloba was subjected to silica gel column chromatography. Further purification by preparative thin-layer chromatography (PTLC) and semipreparative RP-HPLC yielded twelve known compounds (1-12). This is the first report on the isolation of guaiol (1), persicasulphide C (3) and conferoside (10) from the roots of F. flabelliloba. Six compounds including persicasulfide A, conferone, feselol, latisufide C, conferoside and ferutinin showed cytotoxic activity with IC50 values in the range of 11.61-49.40 μM against cancer cells and pan-HDAC inhibitory activity with IC50 values in the range of 1.06-35.27 μM.Conclusion: Results indicated that persicasulfide A (2), conferone (6) and feselol (7) showed moderate cytotoxicity with IC50 values in the range of 11.76-39.24 μM against cancer cells and potent pan-HDAC inhibitory activity with IC50 values in the range of 1.06-10.73 μM. Conferone was more active than others with a higher potency (for HDAC inhibition (1.06- 1.17 μM).

کلمات کلیدی:

Apiaceae, Ferula latisecta, Ferula ovina, Ferula flabelliloba, Histone deacetylase inhibitors, Cytotoxic activities