

Anti-elastase, anti-tyrosinase and matrix metalloproteinase-1 inhibitory activity of earthworm extracts as potential new anti-aging agent

ABSTRACT

Objective: To examine whether earthworms of *Eisenia fetida*, *Lumbricus rubellus* and *Eudrilus eugeniae* extracts have elastase, tyrosinase and matrix metalloproteinase-1 (MMP-1) inhibitory activity. **Methods:** The earthworms extract was screened for elastase, tyrosinase and MMP-1 inhibitory activity and compared with the positive controls. It was also evaluated for whitening and anti-wrinkle capacity. **Results:** The extract showed significantly ($P < 0.05$) good elastase and tyrosinase inhibition and excellent MMP-1 inhibition compared to N-Isobutyl-N-(4-methoxyphenylsulfonyl)-glycylhydroxamic acid. **Conclusions:** Earthworms extract showed effective inhibition of tyrosinase, elastase and MMP-1 activities. Therefore, this experiment further rationalizes the traditional use of this worm extracts which may be useful as an anti-wrinkle agent.

Keyword: Earthworms; Ageing; Elastase; Matrix metalloproteinase-1; Anti-wrinkle agent