

Moringa oleifera Lam.: Protease activity against blood coagulation cascade

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ABSTRACT

Background The present study evaluated the protease activity of aqueous extracts of *Moringa oleifera* (Moringaceae) leaf (MOL) and root (MOR). **Materials and Methods** Protease activity was assayed using casein, human plasma clot and human fibrinogen as substrates. **Results** Caseinolytic activity of MOL was significantly higher ($P \leq 0.05$) than that of MOR. Similar observations were found in case of human plasma clot hydrolyzing activity, wherein MOL caused significantly higher ($P \leq 0.05$) plasma clot hydrolysis than MOR. Zymographic techniques were used to detect proteolytic enzymes following electrophoretic separation in gels. Further, both the extracts exhibited significant procoagulant activity as reflected by a significant decrease ($P \leq 0.05$) in recalcification time, accompanied by fibrinogenolytic and fibrinolytic activities; clotting time was decreased from 180 ± 10 sec to 119 ± 8 sec and 143 ± 10 sec by MOL and MOR, respectively, at a concentration of 2.5 mg/mL. Fibrinogenolytic (human fibrinogen) and fibrinolytic activity (human plasma clot) was determined by sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE), plate method and colorimetric method. Zymographic profile indicated that both the extracts exerted their procoagulant activity by selectively hydrolyzing Aa and Bb subunits of fibrinogen to form fibrin clot, thereby exhibiting fibrinogenolytic activity. However, prolonged incubation resulted in degradation of the formed fibrin clot, suggesting fibrinolytic like activity. **Conclusions** These findings support the traditional usage of *M. oleifera* extracts for wound healing.

KEYWORDS

Caseinolytic . fibrinogenolytic . fibrinolytic . *Moringa oleifera* . procoagulant

REFERENCES