Purification, Characterization and Termiticidal Activity of *Moringa oleifera* Flower Peptides

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Moringa oleifera (Moringaceae) is a tree cultivated in tropical regions. Their flowers are consumed as food, mainly in the Philippines. Antinutritional factors such as lectins and protease inhibitors are common in plant tissues and may disrupt nutrient digestion. This study aimed to isolate and characterize bioactive peptides in *M. oleifera* flowers. Dried flowers (10 g) were extracted with 0.15 M NaCl (100 mL). A saline extract from *M. oleifera* flowers (EMo) was treated with 60 and 90% ammonium sulfate. The 60% precipitated fraction (F0-60) was assessed on hemagglutinating, trypsin inhibitor, caseinolytic and endopeptidase activities. The 90% precipitated fraction (F0-90) was submitted to termiticidal activity assay against *Nasutitermes corniger* (Termitidae), workers and soldiers. None hemagglutinating activity was detected. A *M. oleifera* flower trypsin inhibitor (MoFTI) was purified on trypsin-Sepharose affinity column and partially characterized. MoFTI activity was stable until 90 °C and lower after heating to 100 ºC (65%). MoFTI was active at pH range 4-8. MoFTI SDS-PAGE showed three polypeptide bands of 14, 22 and 30 kDa. F0-60 showed caseinolytic activity and endopeptidase activity to hydrolyze a-N-benzoyl-DL-arginine-p-nitroanilide. The enzyme adsorbed on ion exchange column, CM-cellulose, was eluted with 1 M NaCl; SDS-PAGE revealed the presence of two polypeptide bands with molecular weights of 14 and 20 kDa. F0-90 promoted mortality of *N. corniger* workers, but did not affect soldier survival. In conclusion, the *M. oleifera* flowers contained enzymes, trypsin inhibitor and termiticidal activity.

Keywords: *Moringa oleifera*; trypsin inhibitor; caseinolytic activity; protease; *Nasutitermes corniger*.

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