

MOLECULAR CLONING AND EXPRESSION OF AN INSECTICIDAL DEFENSIN FROM COWPEA SEEDS (*VIGNA UNGUICULATA*)

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In the last few years, a wide variety of insecticidal proteins in diverse plant species has been reported, which can mostly work as defense molecules against pests and pathogens. Between them there are plant defensins, a typical group characterized by peptides with high disulfide bond content, low molecular masses and positive charged amino acid residues. These peptides have been used as biotechnological tools for development of antibiotics, as well as the production of transgenic plants with enhanced resistance to phytopathogens. Therefore, a defensin from cowpea seeds (*Vigna unguiculata*), named *VuD1*, was cloned and expressed in a heterologous system. Further sequence experiments showed the presence of several isoforms, which could suggest a multigenic family in cowpea seeds. Enzymatic assays indicated that *VuD1* was able to inhibit digestive α -amylases from common bean weevil *Acanthoscelides obtectus*. These bean defensins could be used as a novel tool for pest control, as well as for development of transgenic plants and in genetic improvement programs. Moreover, the methodology used for expression of *VuD1* in this work can be used for large scale production of different proteins from a wide species range.

Key words: cowpea, defensin, cloning, expression.

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