

STORAGE SEEDS PEPTIDES: THE PLANTS SECRETE GUARD WITH EFFECTIVENESS AGAINST PHYTO AND HUMAN PATHOGENS

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An important worldwide problem consists in an expressive increasing in economic and healthy losses caused by pathogenic bacteria. In order to reduce these diseases in humans and plants, several studies have related the screening of defense peptides with antibacterial activities. In this research, peptides from seeds of guava (*Psidium guajava*), passion fruit (*Passiflora edulis*) and sesame (*Sesame indicum*) were purified and challenged against fungi and bacteria with the ability to colonize humans and plants. All peptides evaluated caused a remarkable reduction on pathogens growth. Peptides molecular masses, obtained by SDS-PAGE and mass spectrometry, showed approximately 5.0 to 6.0 kDa. Therefore, amino acid sequencing revealed that primary structures showed enhanced identity to plant storage seeds as glycine-rich and 2S protein families. Homology modeling and docking studies corroborated these data, which indicate their probable mechanisms of action. Combining all results, a double function of these protein classes was observed. In fact they are common sources of carbon, nitrogen and sulfur in seeds. Otherwise, our studies indicate that they presented the capability to reduce pathogen infections as a secondary function. These suggest that all peptides here described could, in a near future, contribute to development of novel biotechnological products as natural drugs and transgenic resistant plants.

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