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Abstract

Detection And Characterization of Amylase Enzyme in the Secretion Released during Imbibition of Seeds of Black Eyed Pea (*Vigna unguiculata*)

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Abstract

Background and aim: In this communication, we investigated for the first time the protein profile and amylase activity from secretions released upon imbibition of black-eyed pea seeds.

Materials and methods: During imbibition of surface-sterilized black-eyed peas in deionized water, amylases were released into the medium. These secretions were collected at regular intervals and assayed for amylase activity. Protein profiling of these secretions was performed using 10% SDS-polyacrylamide gel electrophoresis, and protein bands of varying intensities were observed. The presence of amylase-like activity was demonstrated using the starch agar plate method.

Results: A clear zone of starch hydrolysis confirmed the activity of amylases. In addition, 10% SDS starch zymography revealed the presence of two to three amylase activity bands for late-synthesizing amylases. *In vitro solution* assay of amylases showed the presence of the highest activity in the sample taken after 80 hours. The optimal activity of the amylase enzyme was found to be at pH 7 and a temperature 40°C.

Conclusion: The above study represents the first steps toward understanding the mobilization of active molecules outside the seed during imbibition and their respective roles in seed germination.

Keywords: *Amylases, Seed imbibition, SDS-Polyacrylamide gel electrophoresis, Seed germination.*

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