# PROTEASE PRODUCTION USING FUNGI STRAINS ON AMARANTH AGAR PLATES

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**Introduction.** Solid State Culture has been used for protease production[4]. Amaranth contain protein for proteases production nowadays, the proteases are used in detergents, leather processing, silver recovery, medical purposes, food processing, feeds, the chemical industry, as well as waste treatment [1]. Content and protein quality of amaranth can serve as an inductor of protease production[5]. The aim of this work was to measure the diffusion of proteases in Surface Culture whit Amaranth (SCA).

**Methods.** Protease production was performed on AAP using *R. oligosporus, R. microsporus, A. niger 2088, A. sp., A. niger NH15* and *A. niger*. AAP were incubating at 30 °C monitoring radial growth and proteolytic activity every 12 hours. Protease activity was determined using method of Kembhavi[3]. Enzymatic unit (U) was defined as enzyme required for liberate the peptides equivalent to 1 µg of tyrosine per minute under assay conditions.

**Results.** Higher activity was shown after 60 hours of culture for strains *A. niger NH15* (16 U/ml), *A. sp.* (16 U/ml) and *A. niger 2088* (31 U/ml). On the other hand *R. microsporus* shown higher activity before 48 hours of culture (21 U/ml) and *R. oligosporus* (72 U/ml). Extracellular proteases, were measured sampled at different diameters of SCA. Protease activities are lower than activity obtained from *Pseudomonas auroginosa* and *Bacillus subtilis* (720 U/ml) and (412 U / mL), it is important to indicated that the production system are different that system used in this work, on the other hand it is also important to indicated that culture conditions were previously optimized [2,3]. Furthermore radial growth seeing the proteolytic activity achieved by strains of the gender *Rhizopus*, and radial growth indicates that there is a correlation between the two and the most active strains were the colonized in full plate while the genus *Aspergillus* not reached. Growing data radial and proteolytic activity are shown in Fig.1

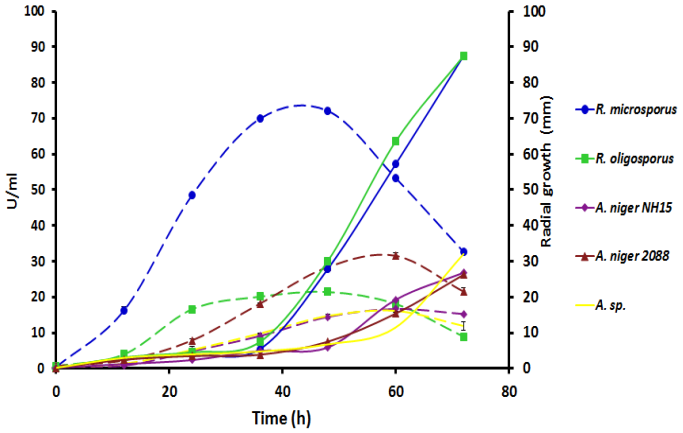


**Fig.1** Kinetics of proteolytic dotted line: activity and is the continuous line: radial growth. of *R. oligosporus*, *R. microsporus*, *A. niger NH15, A. niger 2088 and A. sp.*

**Conclusions.** Fungus showed protease production capacity in SCA. *R. oligosporus* was the strain that showed the highest activity in the study system therefore the results obtained prove perspective strains is cultured using amaranth as solid support/substrate for protease and bioactive peptides production.

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