

Title: SCREENING OF MICROBIAL STRAINS FOR QUERCETIN PRODUCTION FROM RUTIN PRESENT IN FAVA D'ANTA (*DIMORPHANDRA MOLLIS*).

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Abstract

Quercetin is a flavonoid with great importance in pharmaceutical and food industries. It has many biological activities, including antioxidant, anticarcinogenic, antimicrobial, protective effect against heart diseases and others. Quercetin is obtained through acid hydrolysis of natural rutin. extracted from plants. Fava d'anta or faveira (*Dimorphandra mollis*) is a native plant of Brazilian cerrado used as a raw material to obtain rutin and quercetin. The patented processes for rutin extraction generally use a large quantity of organic solvents and present a considerable waste of water. It has been reported that some microorganisms, especially filamentous fungi, are able to hydrolyze rutin to quercetin. The β -glucosidases produced by these microorganisms are responsible for the transformation. The use of such microorganisms would be an environmental friendly method for quercetin production compared to the existing ones. The aim of the present work is to select a microorganism to produce quercetin using fava d'anta as rutin source. Four strains of *Aspergillus flavus* and one of *Penicillium rugulosum* obtained from Brazilian culture collections, twenty-five strains isolated from air and three endophytic fungi were used. To obtain the strains from air, ground sterile moistened fava d'anta in petri dishes were exposed to an open environment. The fungi grown on the plant were isolated by conventional plating methods. The endophytic fungi were isolated from parts of inner bark using Potato Dextrose Agar (PDA) in petri dishes. The isolated microorganisms were inoculated on an agar medium containing rutin as a sole carbon source and twelve quercetin producing strains identified by a yellow fluorescent zone around the colony after spraying an ethanolic solution of aluminum chloride and exposure to 365nm UV light were selected. These strains and the five ones obtained from culture collection were inoculated in ground sterile moistened fava d'anta as culture medium. After 5 days of incubation, the fava d'anta medium were extracted with ethanol and subjected to a qualitative analysis using thin layer chromatography (TLC). Approximately forty five percent of the tested strains were able to produce quercetin from fava d'anta in different levels. Of these, four strains were selected as the best producers and will be used for further studies.

Key words: quercetin, microorganism, fava d'anta

Development agency: FAPERJ e CAPES