

**TITLE:** PRODUCTION OF NEW C-GLUCOSIDES FROM MANGIFERIN USING BACTERIAL STRAINS ISOLATED FROM RHIZOSPHERE OF MANGO TREE

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**ABSTRACT:**

Mangiferin (1.3.6.7-tetrahydroxyxanthone-C2-b-D-glucoside) is a natural polyphenol compound, found in angiosperms and pteridophytes, which has aroused wide spread attention due to its diversity of pharmacological activities such as antioxidant, anti-inflammatory, antidiabetic and anticancer. Therefore, many studies have been performed to develop formulations with this molecule, but the lower solubility of mangiferin is a limiting factor and the insertion of glycosylations is one of the strategies that can be used to overcome this drawback. Despite the use of chemical methods for glycosylating molecules, biotransformations with microbial enzymes has increased, because of its catalytic efficiency, broad specificity and easy production. Hence, the aim of this study was to perform a screening of bacteria isolated from soil sample collected around a *Mangifera indica* L. tree, able to metabolize mangiferin. Thus, 40 strains were pre-cultivated in a 96 well plate containing TGE medium for 24 h and then inoculated in mineral medium supplemented with mangiferin 1 mM for 48 h, 150 rpm, 30 °C. The strain with higher optical density (SM902) was selected for a larger scale assay being pre-inoculated in TGE for 48 h, and inoculated in mineral medium with mangiferin 1 mM, for 24 h, 150 rpm, 30 °C. After centrifugation, the cells were washed and resuspended in phosphate buffer 50 mM (pH 7.3), and subjected to lyses by sonication. Then, the lysate was incubated with mangiferin 1 mM for 48 h, 150 rpm, 30 °C, and centrifuged for utilization in UPLC-ESI-MS analysis. The results showed the presence of retention peaks at 2.1, 2.5 and 3.0 minutes, equivalent to ions with  $m/z$  841 (negative mode) and  $m/z$  843 (positive mode), which correspond to tetrahydroxyxanthone-C-hexoside dimers of mangiferin showing the potential of SM902 to glycosylate mangiferin. Further studies are needed to better characterize the compound produced regarding its biological activities and solubility.

**Keywords:** mangiferin, c-glucosides, UPLC-MS, bacterial extract.

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