**UPLC-DAD-MS2 pigment profile of *Bixa orellana* extracts: identification of new apocarotenoids and antiproliferative activity against chemoresistant human melanoma cells (A2058)**

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*Bixa orellana* is a medicinal plant native to tropical America, widely used in food, cosmetics and pharmaceutical industries because of its high pigment content. Apocarotenoids are the chemical constituents most commonly found in this species and have numerous pharmacological properties, including anticancer activity. The present study was designed to evaluate the chemical composition of extracts (hexane, chloroform, ethyl acetate and methanol) obtained from *B. orellana* seeds by UPLC-DAD-MS2 analysis. In addition, we evaluated their antiproliferative effect against metastatic and chemoresistant human melanoma cells (A2058 cell line). MTT assay was used to evaluate cell viability and healing-wound assay was performed to evaluate the effect of *B. orellana* on cell migration. Hexane, chloroform and ethyl acetate extracts (100 µg/ml) were the most bioactive in the MTT assay, showing antiproliferative effect between 84 and 96%. Similarly, the extracts inhibited cell migration significantly (*p*<0.05) in the healing-wound assay. UPLC-DAD-MS2 analyzes revealed the presence of 13 compounds in the extracts, including bixin and norbixin, the major and best known components of the plant. β-12’-apo-carotenoic acid and the flavonoid naringenin were identified for the first time in *B. orellana*. Interestingly, we also identified two previously undescribed apocarotenoids: 6,8’-diapocarotene-6,8’-dioic and 6,7’-diapocarotene-6,7’-dioic acids. The characterization of these molecules was based on UV absorption profile and MS2 fragments found, compared to similar compounds that have been described for the plant. In summary, this study contributed to the phytochemical knowledge of *B. orellana*, which has shown to be a promising source of molecules for cancer therapy, especially melanoma.

**Keywords:** apocarotenoids, pigments, melanoma, cancer therapy, sensitization.

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