Metabolomics, Anti-inflammatory and Antitumoral Activity of the Endophytic Fungi from *Ocotea* ssp. (Lauraceae).

Chronic inflammation within the tumor microenvironment plays a pivotal role in cancer progression and therapeutic resistance. In this study, endophytic fungi isolated from *Ocotea odorifera* and *O. diospyrofolia* were evaluated for their anti-inflammatory and antitumor properties, alongside compound dereplication via UPLC/HRMS analysis. Ethyl acetate extracts of these endophytes were assessed through *ex vivo* and *in vitro* assays, revealing that several isolates, particularly those from *O. diospyrofolia*, effectively reduced pro-inflammatory mediators (PGE2 and LTB4) and decreased melanoma cell viability. One extract, derived from *Lasiodiplodia* sp., demonstrated potent antiproliferative activity against the SK-MEL-147 melanoma cell line, with an IC_{50} of 9.01 µg/mL, surpassing the efficacy of the reference drug Temozolomide. Cell cycle analysis revealed an increased SubG1 population, accompanied by a reduction in the G0/G1, S, and G2/M populations. Mechanistic investigations further indicated the induction of apoptosis, as evidenced by Annexin V assay and Caspase-3 immunofluorescence, along with disruption of the microtubule network. Additionally, there was a dual inhibition of the COX and LOX inflammatory pathways. Importantly, the extract exhibited low cytotoxicity toward normal fibroblast cultures and significantly suppressed clonogenic potential at subtoxic concentrations. Collectively, these findings highlight the fungal-derived metabolites as inflammation and apoptosis modulators, supporting the further exploration of *Lasiodiplodia* sp. as a potential candidate for the treatment of metastatic melanoma, a malignancy with high lethality and limited therapeutic options.

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