LIMONOIDS FROM THE SEEDS OF Chithochetum macrophyllus

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A new limonoid compound, dysochilin (1), along with three known limonoid compounds, 7α-hydroxycumurrilicene (2), dysochilin (3), and nimofolin (4), was isolated from the seeds of Chithochetum macrophyllus (Meliaceae). Their structures were established by spectroscopic techniques such as UV, IR, MS, 1D, and 2D NMR. Compounds 1–4 showed cytotoxic activity against P-388 murine leukemia cells with IC₅₀ values of 49.7, 79.4, 19.5, and 64.5 μg/mL, respectively.

Keywords: dysochilin, limonoid, Chithochetum macrophyllus, P-388 murine leukemia cells.

The Chithochetum genus, a member of the Meliaceae family, consists of approximately 50 species that are distributed mainly in India, Thailand, Malaysia, and Indonesia [1, 2]. The genus Chithochetum belongs to the subtropical and tropical plant family widely known for its insecticidal limonoid constituents [3]. Previous phytochemical studies on Chithochetum species have yielded a number of interesting compounds, including limonoinds [4, 5], antifungal meliasso-type compound [6], dammarane triterpenoids [7], and spironolid alkaloids [8]. As part of our studies on novel compounds from Indonesian Meliaceae plants [9, 10], we carried out a study on Chithochetum macrophyllus seeds. C. macrophyllus is a higher plant found growing in the rain forest in the northern part of Sulawesi Island, Indonesia [2, 11]. The plant is known as Ma-aa in Indonesia, and the seed oil from this plant is used in Indonesia for lighting [12]. Its leaves have been reported to yield dammarane triterpenoids [7], but the seeds of this plant have never been phytochemically investigated. In this communication, we describe the isolation and structure elucidation of a new limonoid (1) and three known limonoinds (2–4) from the seeds of C. macrophyllus along with their cytotoxic activity against P-388 murine leukemia cells.