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Anti-oxidative and anti-cancer activities of *Machaerium cuspidatum* extract

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Machaerium cuspidatum, a canopy liana, is a species of genus legume in the Fabaceae family and contributes to the total species richness in tropical rain forests. In the present study, we investigated the anti-oxidative and anti-cancer effects of *M. cuspidatum* and the molecular mechanisms of its anti-cancer activity in human lung adenocarcinoma A549 cells and human hepatocellular carcinoma HepG2 cells. Methanol extract of *M. cuspidatum* (MEMC) showed significant anti-oxidative activity and the cytotoxic effect in a dose-dependent manner in several cancer cell lines. Annexin V-positive apoptotic cells and apoptotic bodies increased by MEMC treatment. Further investigation showed that MEMC-induced apoptosis was associated with the increase of p53 and Bax expression, and the decrease of Bcl-2 expression. In addition, MEMC treatment led to proteolytic activation of caspase-3, -8, -9 and degradation of Poly ADP Ribose Polymerase (PARP). Taken together, these results suggest that MEMC may exert a beneficial anti-cancer effect by apoptosis induction via both extrinsic and intrinsic pathways in A549 and HepG2 cells.

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