

Constituents of *Boesenbergia pandurata* and Their cytotoxicity against PANC-1 Cells under Nutrient Deprived Condition

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Pancreatic cancer is an aggressive disease with the lowest 5-year survival rate of all cancers. It is largely resistant to conventional forms of treatment and the development of more effective treatment is urgently needed. Among different forms of cancer, pancreatic cancer cells have remarkable tolerance against extreme nutrient starvation enabling them to survive for prolonged period of time even in critically low nutrient condition. Thus, the elimination of this tolerance of cancer cells to nutrient starvation might be a new biochemical approach in cancer therapy. Under this approach, a new screening strategy has been developed for the discovery of anticancer agents that preferentially eliminates the tumor cells capability to survive under low nutrition condition using PANC-1 cancer cell line, termed as anti-austerity strategy. Under this strategy, screening of medicinal plants from Myanmar was carried out and found that the chloroform extract of *Boesenbergia pandurata* exhibited 100% preferential cytotoxicity at a concentration of 10 $\mu\text{g}/\text{mL}$. Thus, detailed phytochemical investigation was carried out, which yielded four new compounds, geranyl-2,4-dihydroxy-6-phenethylbenzoate (1), 2',4'-dihydroxy-3'-(1"-geranyl)-6'-methoxychalcone (2), 2-hydroxyisopanduratin A (3), and 8-geranylpinostrobin (4) along with twenty known compounds (5-24). Among the known compounds, 6-geranylpinostrobin (5), 6-methoxypanduratin A (6), and 7,8-dihydro-5-hydroxy-2-methyl-2-(4"-methyl-3"-pentenyl)-8-phenyl-2*H*,6*H*-benzo[1,2-*b*:5,4-*b'*]dipyran-6-one (7) were isolated for the first time from the natural source. The isolated compounds showed varying degrees of an in vitro preferential cytotoxicity. Among them, Panduratin A (15) and nicolaioidesin B (17) exhibited the most potent preferential cytotoxicity at 2.5 μM .