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Utilization and validation of therapy with *Artocarpus tonkinensis*, a tree growing in North Vietnam

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Artocarpus tonkinensis A Chev. ex Gagnep (Moraceae) is a tree found in northern Vietnam used in VTM by the Hmong ethnic minority to treat arthritis and backache. Intraperitoneal injections of *A. tonkinensis* extract decreased both arthritis incidence and severity and delayed disease onset in rats with collagen-induced arthritis. *In vitro*, an extract induced apoptosis in lymph node cell cultures, inhibited mitogen-induced T-cell proliferation, and induced apoptosis of activated LN-derived lymphocytes. In addition, four individual active components isolated from *A. tonkinensis* have anti-inflammatory effects which correlate with the tree's inhibition of mitogen-induced T-cell proliferation. These extracts also inhibited production of cytokines, such as tumor necrosis factor- α and interferon- γ , in mitogen-stimulated T cells. The authors postulated that suppression of T-cell proliferation and cytokine production by *A. tonkinensis* flavonoids contribute to reduced arthritis severity after experimentally-induced arthritis. *A. tonkinensis* compounds were also tested for anti-cancer activity, revealing that maesopsin 4-O- β -D-glucoside (TAT-2) has anti-proliferative effects on acute myeloid leukemia cells and modulates expression of 19 genes, including hemoxygenase-1 (HMOX-1), sulphiredoxin 1 homolog (SRXN1), and breast carcinoma amplified sequence 3 (BCAS3). TAT-2 showed also activity against lung cancer *in vivo*. Other compounds isolated from *A. tonkinensis* roots, such as cyclocommunol, isocyclomulberrin, cudraflavone C and morusin, also exhibited cytotoxicity against hepatocellular carcinoma (SMMC-7721) and gastric carcinoma (BGC-823 and SGC-7901) cell lines. Thus, the success of *A. tonkinensis* use shows TM can maintain its ethnocultural identity while capitalizing on Western scientific approaches (e.g. chemical isolation of active compounds and their biological validation) to ascertain its efficacy and safety.

Biography

Domenico V Delfino completed his Medical Doctor degree at the University of Perugia, PhD in Experimental Medicine at the University "Sapienza" in Rome, Italy. He completed his training at the University of Pittsburgh Cancer Center. He is the President of Nursing School at University of Perugia Medical School. He has published more than 40 papers in peer-reviewed international journals.

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