

Vietnamese traditional medicine: anti-rheumatoid arthritis activity of extract from the tree *Artocarpus tonkinensis*.

S. Adorasio¹, I. Muscari², A. Rossetto³, C. Riccardi⁴, D.V. Delfino⁵.

Dept. of Pharmaceutical Sciences, University of Perugia¹, Section of Onco-hematology, S.Maria Terni Hospital, Dept. of Surgery and Medical Sciences², Foligno Nursing School³, Dept. of Experimental Medicine, Section of Pharmacology, Dept. of Medicine, University of Perugia⁴.

Artocarpus tonkinensis (AT) is a tree growing in north Vietnam used by the Hmong ethnic minority. The decoction of its leaves is used in traditional Vietnamese medicine for the treatment of rheumatoid arthritis and backache.

In order to scientifically validate the traditional utilization of this ancient Vietnamese remedy, collagen-induced arthritis (CIA), a widely accepted experimental mouse model of autoimmune arthritis, has been used. Arthritis is initiated by intradermal injections of Collagen Type II (CII) emulsified in Freund's Adjuvant. This causes an immune response generating antibodies to CII. Therefore there is a recruitment of a T cell and B cell component to the pathology. The joint destruction in collagen-induced arthritis involves cartilage destruction, bone resorption, synovial hyperplasia and periarticular cell infiltration. DBA/1 mice treated by CII were concomitantly given the decoction of the leaves of AT ad libitum, whereas the control group were given water. After 28 days, mice were re-challenged with CII and Incomplete Freund's Adjuvant by intradermal injections.

50% of control mice developed arthritis clinically evaluated by joint swelling. The scoring system for subjective evaluation of arthritis severity gave the maximum score of 4, whereas no mice in the AT treated group developed a clinical evident arthritis (0 score). Histology of joints evidenced a wide cartilage destruction and an intense cell inflammatory infiltration in control mice, whereas cartilage was normal and either no or very mild cell inflammatory infiltration was observed in AT-treated mice.

The expression of genes related to inflammatory response and autoimmunity in the joints of these mice was evaluated: 23 genes were up-regulated whereas 16 genes down-regulated in At-treated mice compared to controls. Additionally, analysis of lymph nodes showed that the number of cells were doubled in At-treated mice compared to controls.

Preliminary results show that AT decoction inhibits the *in vitro* polarization of T helper cells.