

# Anti-rheumatoid arthritis activity of decoction from the leaves of the tree *Artocarpus tonkinensis* used in Vietnamese traditional medicine

A. Rosseto<sup>1</sup>, S. Adorisio<sup>2</sup>, L. Cannarile<sup>5</sup>, I. Muscari<sup>3</sup>, A.M. Liberati<sup>3</sup>, M. Calvitti<sup>4</sup>, C. Riccardi<sup>5</sup>, T. Thy Thuy<sup>6</sup>, D.V. Delfino<sup>5</sup>

<sup>1</sup>Foligno Nursing School

<sup>2</sup>Dept. of Pharmaceutical Sciences

<sup>3</sup>Section of Onco-hematology, S.Maria Terni Hospital, Dept. of Surgery and Medical Sciences

<sup>4</sup>Dept. of Experimental Medicine

<sup>5</sup>Section of Pharmacology, Dept. of Medicine, University of Perugia

<sup>6</sup>Institute of Chemistry, Vietnam Academy of Science and Technology, Cau Giay, Hanoi, Vietnam

The decoction of the leaves of the tree *Artocarpus Tonkinensis* (*At*) is used in traditional Vietnamese medicine for the treatment of rheumatoid arthritis and backache by the ethnic minority called Black Hmong.

In order to scientifically validate the traditional utilization of this ancient Vietnamese remedy, collagen-induced arthritis, a widely accepted experimental mouse model of autoimmune arthritis, has been used.

DBA/1 mice treated with collagen plus Freund adjuvant at day-0, 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 collagen plus Freund adjuvant. In the following two weeks, 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 gene expression, evaluated by the mouse inflammatory response & autoimmunity plate of the Qiagen RT<sup>2</sup> profiler PCR array profile, of joints evidenced that 39 genes involved in autoimmune diseases were modulated in *At*-treated mice compared to controls. Of them, 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. Real-time PCR analysis and ELISA experiments are currently under way to validate gene expression profile results.

In conclusion, our experiments validated the traditional therapeutic uses of *At* decoction and showed that different autoimmunity and inflammatory genes are involved in its therapeutic mechanism.

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