

Anti-inflammatory activity of Kefired plant extracts

Dr. Sergi Rollan

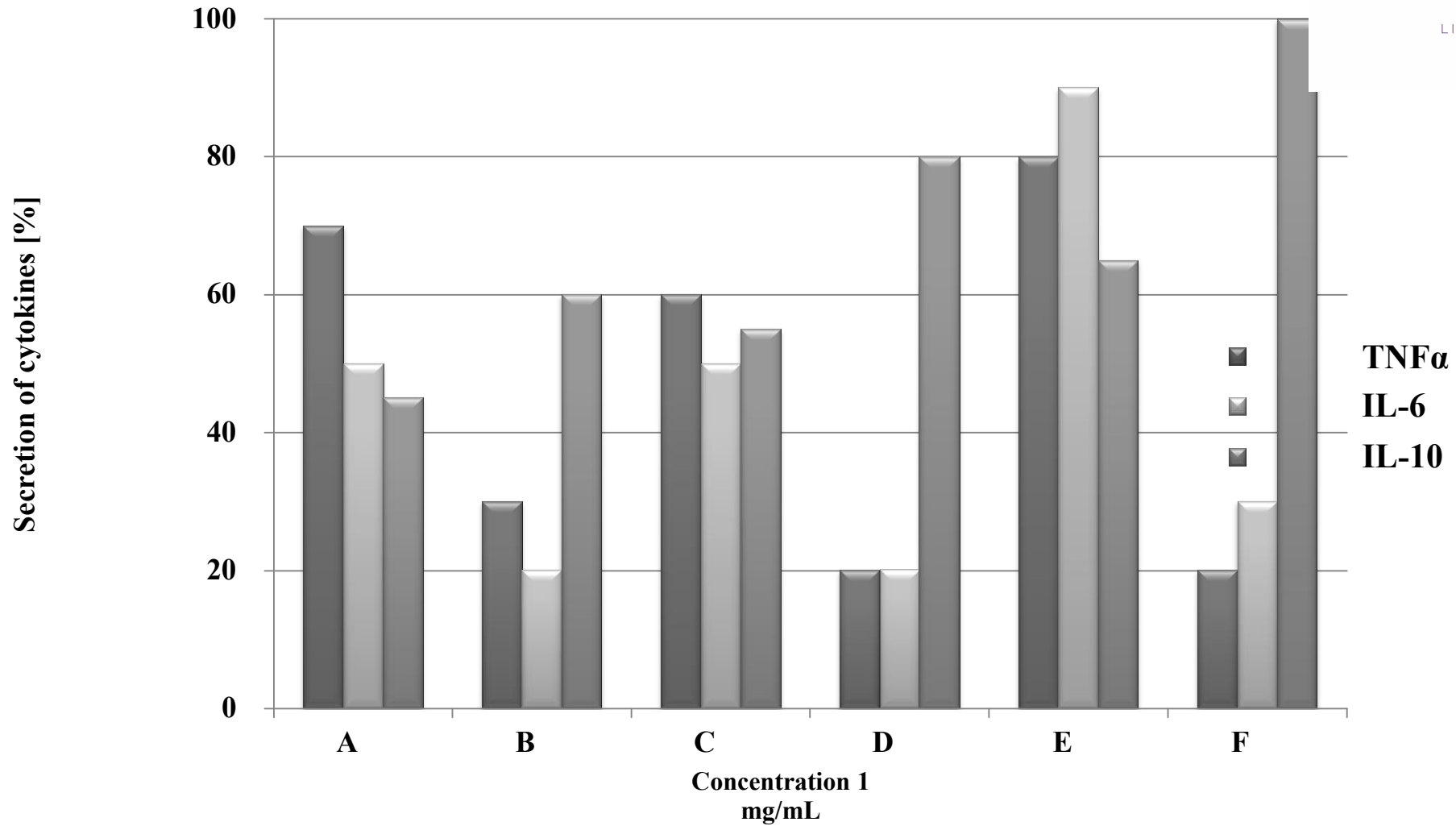
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Inflammation plays an important role in various diseases with high prevalence within populations such as rheumatoid arthritis, atherosclerosis and asthma. Here we demonstrate the anti-inflammatory activity of kefirred cinnamon, turmeric and ginger extract various fruits, herbs and spices in a lipopolysaccharide-stimulated macrophage model.

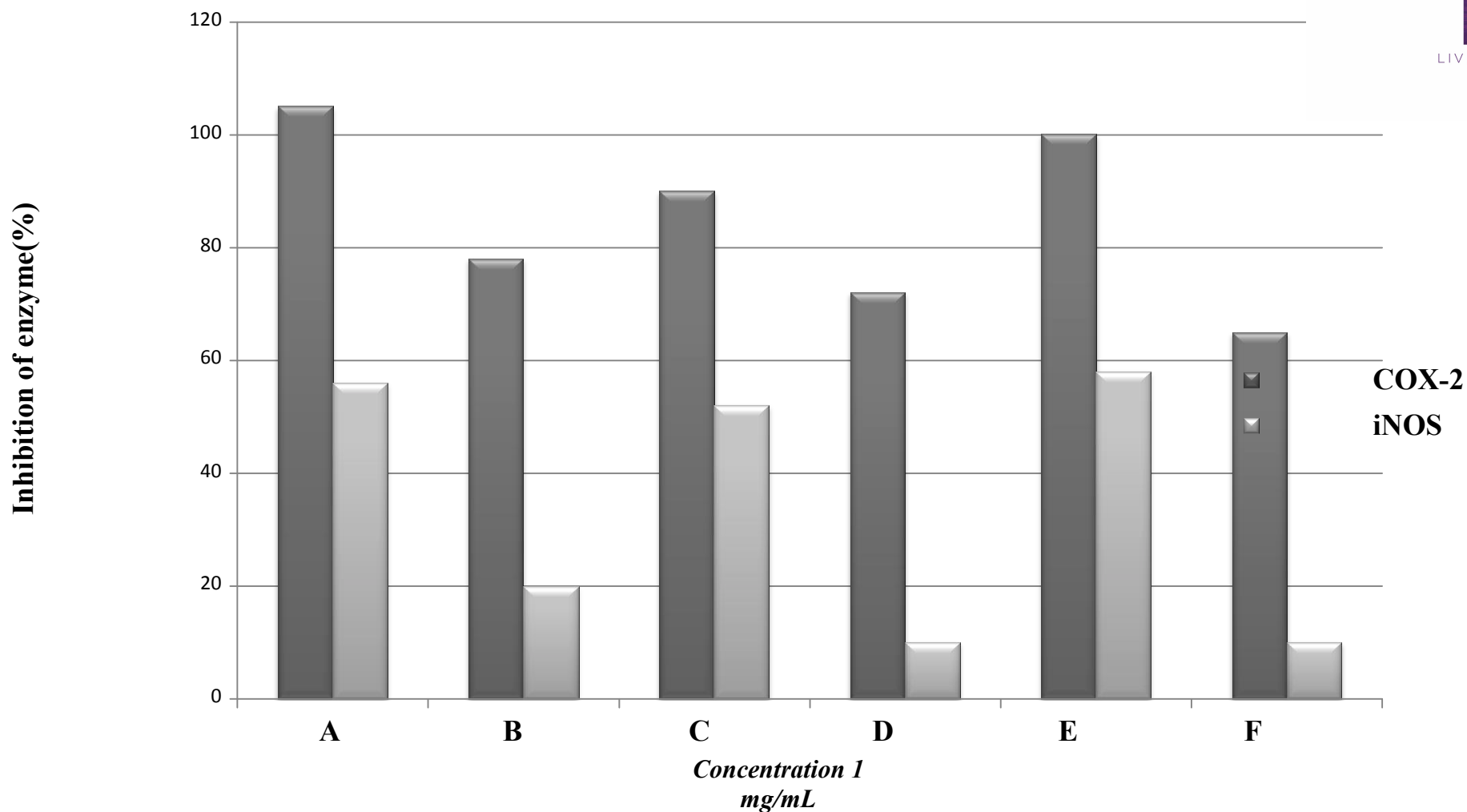
These compounds acted by reduction of pro-inflammatory interleukin (IL)-6 or tumour necrosis factor (TNF)-alpha production, enhancement of anti-inflammatory IL-10 production, or reduction of cyclooxygenase-2 (COX-2) or inducible nitric oxide synthase (iNOS) expression.

Since ancient times, in various cultures worldwide, inflammatory disorders and related diseases have been treated with plants or plant-derived formulations. Turmeric extract (*Curcuma longa*), which has traditionally been used for treatment of rheumatic disorders in Indian traditional medicine, exerts both anti-inflammatory and anti-atherosclerotic effects. Ginger extract (*Zingiber officinale*) is effective in ameliorating arthritic knee pain. Cinnamon extract (*Cinnamomum zeylanicum*) is suggestive of its anti-arthritic activity, which could be confirmed in various models of arthritis.

This abstract of study aims to demonstrate the potential of kefirred plant extracts improves for potential anti-inflammatory plant extracts : cinnamon, turmeric and ginger.



A. Influence of plant extracts and kefir plant extracts on the secretion of TNF α , IL-6 and IL-10, as determined by ELISA assays: (A) cinnamon extract, (B) kefir cinnamon extract, (C) turmeric extract, (D) kefir turmeric extract, (E) ginger extract, (F) kefir ginger extract.



B. Characteristics of the plant extracts and kefir plant extract used in the LPS-stimulated macrophage model; the expression of COX-2 and iNOS by Western blot, were calculated as a percent of the LPS-stimulated positive control cells. (A) cinnamon extract, (B) kefir cinnamon extract, (C) turmeric extract, (D) kefir turmeric extract, (E) ginger extract, (F) kefir ginger extract.

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Kefired plant extracts exhibited anti-inflammatory activity by elevating anti-inflammatory IL-10 production, reducing pro-inflammatory IL-6 or TNF-a production, reducing the expression of iNOS and COX-2.

The results from our study demonstrate improved anti-inflammatory response in a LPS-stimulated macrophage model upon treatment with kefired plant extracts (cinnamon, turmeric, ginger) via :

- 1. reduction of IL-6 and TNF-a production**
- 2. enhancement of IL-10 production**
- 3. reduction of expression of COX-2 or iNOS.**

These findings further the idea that a diet rich in kefired plant extracts may contribute to the reduction of inflammation and be preventive against related diseases.