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Yerba mate (*Ilex paraguariensis*) inhibits lymphocyte activation in vitro.

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Abstract

Yerba mate (YM) has been shown to have anti-inflammatory properties in several studies. However, this effect has been found mainly in obesity-related inflammation. The aim of this work was to study the effect of YM on cultured peripheral blood mononuclear cells to see whether it has anti-inflammatory properties. We stimulated peripheral blood mononuclear cells in vitro with phytohemagglutinin (PHA) in the presence of **yerba mate** and determined their activation by measuring the expression of CD25 by flow cytometry. We observed that YM treatment produced a dose-dependent reduction in PBMC activation (CD25 positive cells) when they were stimulated with PHA. This effect was also observed in T cells' (CD3 positive) subpopulation. Microarray analysis revealed the differential expression of 128 genes in YM-treated cells. According to a protein-protein interaction database, these genes were highly connected and they are involved in the inflammatory response. In summary, it was demonstrated that YM produces a reduction in the amount of activated cells under the stimulation of PHA. Therefore, it might be used in diseases with an inflammatory component.

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