

INHIBITION OF NITRIC OXIDE PATHWAY BY AN ACETONIC EXTRACT FROM *FEIJOA SELLOWIANA* BERG. FRUITS

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Feijoa sellowiana Berg. is a South American plant with a pleasant flavour which is also eaten stewed, in jams, jelly or juice. It contains different bioactive compounds with antimicrobial and antioxidant activities that seem to be particularly ascribed to the fruit. Since nitric oxide (NO) plays an important role in inflammation the present study was designed to evaluate the anti-inflammatory activity of an acetonic extract from the *Feijoa sellowiana* Berg. Fruits on NO pathway. To this aim we have utilized murine macrophages J774 cell line which express iNOS following stimulation with lipopolysaccharide (LPS) and evaluated the effects of this extract and its fractions on NO production, iNOS protein expression and signal pathways involved in its regulation.

The marked increased production of nitrites the stable end products of NO induced by stimulation of J774 cells with LPS for 24 h, in comparison to unstimulated cells, was concentration-dependently inhibited by the extract (36, 76 and 93%, $p < 0.001$, at 50, 250 and 750 $\mu\text{g/ml}$, respectively). On the contrary when the extract was added 24 h after LPS no inhibition was observed suggesting an action on the expression of the enzyme rather than on the activity. In fact, at the same concentrations, the extract inhibited by 40, 61 and 80% ($p < 0.001$) the expression of the enzyme. Furthermore a concentration-related decrease in LPS-induced I κ B α degradation and ERK-1/2 phosphorylation was observed, suggesting a regulation of iNOS by the acetonic extract at transcriptional level. In order to evaluate the chemical components of the extract responsible for the observed inhibitory activity was subjected to a fractionation procedure which gave rise to 11 (A-M) fractions, of them only fraction B and C showed anti-inflammatory activity being consequently responsible for the activity of the extract. The analysis of the chemical composition of these fractions showed that fraction B consisted of flavone (100%) and fraction C of stearic (28%) and linoleic (13%) acid. The analysis of the activity of the components of the fractions (B and C) showed that only stearic acid exhibited an inhibitory activity on NO production. In conclusion, our study demonstrates that at least some part of the anti-inflammatory activity of the acetonic extract from the *Feijoa sellowiana* Berg. fruit is due to the suppression of NO production by flavone and stearic acid. The mechanism of this inhibition seems to be related to an action on the expression of the enzyme which is inhibited through the attenuation of NF- κ B and/or MAPK activation.