



Naturally appearing N-feruloylserotonin isomers suppress oxidative burst of human neutrophils at the protein kinase C level

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Abstract:

N-feruloylserotonin (N-f-5HT) isomers, isolated from seeds of *Leuzea carthamoides* (Wild) DC, inhibited dose-dependent oxidative burst in human whole blood and isolated neutrophils *in vitro*, which were measured by luminol- and/or isoluminol-enhanced chemiluminescence in the following rank order of stimuli: PMA > OpZ > calcium ionophore A23187. In isolated neutrophils that were stimulated with PMA, N-f-5HT isomers were effective against extracellular and intracellular reactive oxygen species. Liberation of ATP, analysis of apoptosis, and recombinant caspase-3 activity revealed that N-f-5HT isomers, used in concentrations up to 100 μ M, did not alter the viability and integrity of isolated neutrophils. Western blot analysis documented that in concentrations of 10 and 100 μ M, N-f-5HT isomers significantly decreased PMA-induced phosphorylation of PKC α/β II. The results suggest that N-f-5HT isomers are an effective, naturally occurring substance with a potent pharmacological effect on the oxidative burst of human neutrophils. It should be further investigated for its pharmacological activity against oxidative stress in ischemia-reperfusion, inflammation and other pathological conditions.

Keywords:

neutrophils, N-feruloylserotonin, extracellular and intracellular chemiluminescence, protein kinase C phosphorylation
