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*Abstract*

# Modulation of human neutrophils' oxidative burst by hydroxylated 2-styrylchromones: the relevance of the catechol group †

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2-Styrylchromones (2-SC) are a group of oxygen-containing heterocyclic compounds, which are characterized by the attachment of a styryl group to the C-2 position of their chromone core. Over the years, several biological activities have been attributed to 2-SC, such as antioxidant, anti-inflammatory, antimicrobial, antiviral, and antitumor. [1,2] Nonetheless, there are no reports in the literature about the effect of 2-SC on human neutrophils' oxidative burst.

Therefore, the present study aims to evaluate the modulation of human neutrophils' oxidative burst by a panel of hydroxylated 2-SC, analysing the structure-activity relationships. For that purpose, freshly isolated neutrophils from human blood were stimulated with phorbol-12-myristate-13-acetate and a chemiluminescence method was applied to evaluate the oxidative burst, using luminol as probe.

Considering the OH substituents present on B-ring of 2-SC, the tested compounds can be divided into three groups: group 1, with a catechol group (C-3′ and C-4′); group 2, with an OH at C-4′ and group 3, without any substitution on B-ring. The 2-SC from group 1 were the most active, with $IC_{50}$ values in the order of 1 μM. In conclusion, the catechol B-ring appears to play an important role in the modulation of human neutrophils' oxidative burst by 2-SC.

**References:** 1. Gomes et al. DOI: 10.2174/138955710791112550; 2. Santos et al. DOI: 10.1002/ejoc.201700003; 3. Ribeiro et al. DOI: 10.1016/j.ejmech.2013.06.019

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