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Purpose: 2-Styrylchromones are a small group of natural occurring chromones, vinylologues of flavones (2-phenylchromones). A relevant described property of flavones and other flavonoids, especially the hydroxylated derivatives, is their capacity to act as antioxidants. Singlet oxygen ($^1\text{O}_2$) is generated in tissues by a range of peroxidase enzymes and by photochemical reactions involving a variety of endogenous pigments. It is highly reactive, being capable of oxidize various biomolecules, including DNA, proteins and lipids, causing cell death and mutations. Thus, the purpose of the present study was to characterize the putative $^1\text{O}_2$ scavenging effect by seven synthetic 2-styrylchromones.

Material and methods: The $^1\text{O}_2$ scavenging activity was measured by monitoring the oxidation of the non-fluorescent dihydrorhodamine 123 to the fluorescent rhodamine 123 by this reactive oxygen species. $^1\text{O}_2$ was generated by the thermal decomposition of a water-soluble endoperoxide [disodium 3,3'-(1,4-naphthalene)bispropionate (NDPO₂)]. Assays were performed in a microplate reader by fluorimetry at the emission wavelength 528 ± 20 nm with excitation at 485 ± 20 nm.

Results: The synthesized 2-styrylchromones showed to be potent scavengers of $^1\text{O}_2$ in a concentration-dependent manner, specially the styryl-catechol-derivatives, which provided IC₅₀ values between 5 and 10 μM .

Conclusion: The obtained results suggest a promising application of these compounds as new scavengers for this reactive oxygen species.