

# Protective effect of Boldo and tea infusions on the visible light-mediated pro-oxidant effects of vitamin B2, riboflavin

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The effect of Boldo and black tea infusions on the pro-oxidant effects of vitamin B2, riboflavin (RF), when exposed to the action of visible light was studied. The amounts of antioxidants present in Boldo and tea infusions were evaluated by a procedure based on the bleaching of preformed 2,2'-azinobis(3-ethylbenzothiazoline-6-sulfonic acid) radical cations and were expressed as 6-hydroxy-2,5,7,8-tetramethyl-chroman-2-carboxylic acid equivalent concentrations. The quenching rate constants of singlet oxygen ( $^1O_2$ ;  $[kq]_{\text{Boldo}} = 6.0 \times 10^7 \text{ M}^{-1} \text{ s}^{-1}$  and  $[kq]_{\text{Tca}} = 3.2 \times 10^7 \text{ M}^{-1} \text{ s}^{-1}$ ) and triplet RF ( $^3\text{RF}$ ;  $[3\text{RF}kq]_{\text{Boldo}} = 10 \times 10^8 \text{ M}^{-1} \text{ s}^{-1}$  and  $[3\text{RF}kq]_{\text{TEA}} = 3.2 \times 10^8 \text{ M}^{-1} \text{ s}^{-1}$ ) with Boldo and tea were determined by flash photolysis. These data allow a quantitative interpretation of the results obtained. Our data suggest that most of the oxygen consumption observed in the photolysis of RF in the presence of tea and Boldo infusions is caused by  $^1O_2$  reactions. The oxygen consumption quantum yield is consid