Suppression of inducible nitric oxide production by indole and isothiocyanate derivatives from Brassica plants in stimulated macrophages

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Abstract

In this study, the effects of bioactive compounds derived from vegetables of the Brassica genus (Brassicaceae) including 2-phenylethyl isothiocyanate (PEITC), indole-3-carbinol (I3C), and indolo[3,2- b]carbazole (ICZ), on the inhibition of NO production in RAW 264.7 cells were explored. The results indicated that PEITC and I3C inhibited lipopolysaccharide (LPS)- and interferon-gamma (IFN-gamma)-induced NO production in RAW 264.7 cells, and this inhibition was in accordance with lowering the expression of iNOS protein and mRNA. On the contrary, ICZ, a derivative of I3C, had no significant effect on the stimulated NO production. In conclusion, the Brassica plants derivatives, PEITC and, to a lesser extent, I3C inhibit the LPS/IFN-gamma-induced NO production by lowering iNOS protein and mRNA expression in RAW 264.7 cells, in which the PEITC had a more potent inhibitory effect. Nevertheless, ICZ exhibits no inhibitory effect on the activated NO production (Indole-3-carbinol = indole-3-methanol).