

Title The influence of fruit ripening on the phytochemical content and biological activity of *Capsicum chinense* Jacq. cv Habanero

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Citation Food Chemistry, Volume 114, Issue 2, 15 May 2009, Pages 553-560

Keywords *Capsicum chinense* Jacq. cv Habanero; Phenolics; Carotenoids; Capsaicinoids; Antioxidant; Amylase inhibition; Glucosidase inhibition; Cholinesterase inhibition

Abstract

During the past decade, it has been reported that the consumption of certain foods and spices such as pepper may have a positive effect on health. The present study evaluates the influence of fruit ripening on total phenols, flavonoids, carotenoids and capsaicinoids content and antioxidant, hypoglycaemic and anticholinesterase activities of *Capsicum chinense* Jacq. cv Habanero. The chemical investigation showed a different composition between the two stages of ripening (immature and mature). Generally, the concentration of carotenoids and capsaicinoids increased as the peppers reached maturity, whereas the concentration of phenols declined. The immature fruits showed the highest radical scavenging activity (IC_{50} of 97.14 $\mu\text{g/ml}$). On the contrary, the antioxidant activity evaluated by the β -carotene bleaching test showed a significant activity for mature peppers (IC_{50} value of 4.57 $\mu\text{g/ml}$ after 30 min of incubation). Mature peppers inhibited α -amylase with an IC_{50} of 130.67 $\mu\text{g/ml}$. The lipophilic fractions of both mature and immature peppers exhibited an interesting and selective inhibitory activity against α -amylase with IC_{50} values of 29.58 and 9.88 $\mu\text{g/ml}$, respectively. Both total extracts of mature and immature peppers inhibited butyrylcholinesterase selectively. The obtained results underline the potential health benefits as a result of consuming *C. chinense* Habanero and suggest that it could be used as new valuable flavour with functional properties for food or nutraceutical products on the basis of the high content of phytochemicals and found biological properties.