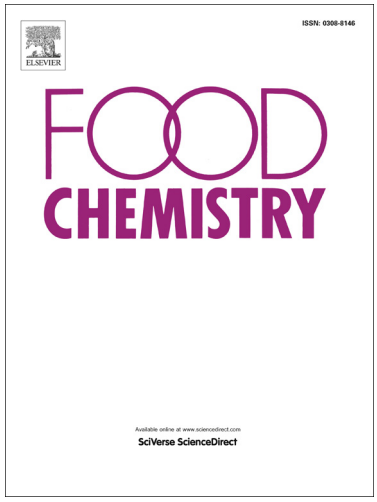

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ABSTRACT

Curcumin has been shown to have a wide variety of biological activities for various human diseases including inflammation, diabetes and cancer. However, the poor oral bioavailability of curcumin poses a significant pharmacological barrier to its use therapeutically and/or as a functional food. Here we report the evaluation of the bioavailability and bio-efficacy of curcumin as an amorphous solid dispersion (ASD) in a matrix consisting of hydroxypropyl methyl cellulose (HPMC), lecithin and isomalt using hot melt extrusion for application in food products. Oral pharmacokinetic studies in rats showed that ASD curcumin was ~ 13-fold more bioavailable compared to unformulated curcumin. Evaluation of the anti-inflammatory activity of ASD curcumin *in vivo* demonstrated enhanced bio-efficacy compared to unformulated curcumin at 10-fold lower dose. Thus ASD curcumin provides a more potent and efficacious formulation of curcumin which may also help in masking the colour, taste and smell which currently limit its application as a functional food ingredient.