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Comparative absorption of a standardized curcuminoid mixture and its lecithin formulation.

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Abstract

The relative absorption of a standardized curcuminoid mixture and its corresponding lecithin formulation was investigated in a randomized, double-blind, crossover human study. Clinically validated dosages were used for both products, and plasma levels of all three major curcuminoids [curcumin (1a), demethoxycurcumin (1b), and bisdemethoxycurcumin (1c)] were evaluated. Total curcuminoid absorption was about 29-fold higher for the complex than for its corresponding unformulated curcuminoid mixture, but only phase-2 metabolites could be detected, and plasma concentrations were still significantly lower than those required for the inhibition of most anti-inflammatory targets of curcumin. Remarkably, phospholipid formulation increased the absorption of demethoxylated curcuminoids much more than that of curcumin (1a), with significant differences in plasma curcuminoid profile between the complex and its corresponding unformulated curcuminoid mixture. Thus, the major plasma curcuminoid after administration of the complex was not curcumin (1a), but demethoxycurcumin (1b), a more potent analogue in many in vitro anti-inflammatory assays. The improved absorption, and possibly also a better plasma curcuminoid profile, might underlie the clinical efficacy of the complex at doses significantly lower than unformulated curcuminoid mixtures.

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