

Release kinetics of flavonoids in methyl linoleate from microparticles designed with inulin and channelizing agent

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Quercetin (Q), naringenin (N) and epicatechin (E) were encapsulated with inulin (In) as encapsulating agent and Capsul (C) as channelizing agent by spray drying and applying a Box-Behnken design. Q-In, N-In, E-In, Q-In-C, N-In-C and E-In-C were characterised by encapsulating efficiency (EE) and their release profile in methyl linoleate (ML). The flavonoid EE was significant higher ($p < 0.05$) for Q and E (over 60%) than for N (? 40%) in microparticles either without or with channelizing agent. An increase of the number of flavonoid hydroxyl groups enhanced EE, showing the influence of the flavonoid structural features. The release profile was fitted to Peppas and Higuchi mathematical models. The highest and lowest flavonoid release rate constants were found for N and E, respectively, for microparticles both with and without channelizing agent. The EE as indicator of flavonoid-inulin interaction was inversely related with the release rate constant in ML. Flavonoid release rate constant