

Evolution of the phenolic compounds profile of olive leaf extract encapsulated by spray-drying during in vitro gastrointestinal digestion

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© 2018 Elsevier LtdAn olive leaf extract (OLE) was microencapsulated with sodium alginate (SA) by spray-drying to study the evolution of oleuropein (ORP) during in vitro gastrointestinal digestion, and its bioaccessibility and potential bioavailability from OLE and OLE-SA microparticles. Secoiridoids, flavonoids, simple phenols, oleosides and elenolic acid were identified in OLE. OLE/SA ratio 1:1.6 and inlet air temperature 135 °C were the optimal conditions for OLE-SA microparticles. ORP (70%) from OLE was degraded during gastric digestion, giving hydroxytyrosol and ORP-aglycone, whereas only the superficial ORP was released from microparticles. The remaining ORP from OLE was degraded under intestinal conditions, leading to oleosides; whereas alginate was swollen and disintegrated, releasing the ORP (90% of encapsulated ORP). ORP from both OLE and microparticles was degraded to hydroxytyrosol under colonic conditions. Encapsulation of OLE allowed the protection of ORP under gastric co