

## Plant-based beverages fortified with resveratrol complexes of $\beta$ and $\gamma$ cyclodextrins: impact on bioaccessibility

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Resveratrol (RSV) is a functional ingredient with numerous bioactive properties, but precautions should be considered in the formulation of liquid food products due its poor solubility and bioavailability. In this context, cyclodextrin complexes are a viable strategy, already applied in delivering hydrophobic compounds [1]. This study aimed at evaluating the use of  $\beta$  and  $\gamma$ -cyclodextrin complexes with RSV ( $\beta$ -CD-RSV and  $\gamma$  CD RSV, respectively) on rice beverages (BA), concerning the impacts on RSV solubility and bioaccessibility.

BA was fortified with 0.75 mg/mL of RSV (free or complexed with CDs) and submitted to digestion in static and dynamic models. Static digestion (SD) was performed according to consensus Infogest 2.2 parameters [2], on one-pot Erlenmeyer at 37°C. Upon digestion, the BA samples were centrifuged, resulting in sediment (digest, composed of insoluble compounds) and a supernatant (micellar phase). Dynamic digestion (DD) was performed in a dynamic gastrointestinal model, miming gastric, duodenal, jejunal, and ileal phases [3]. The filtered resulting samples in each digestion compartment were extracted with ethyl acetate (1:1), evaporated and resuspended in 70% ethanol. RSV quantification of non-digested and digested BA (with both digestion methodologies) was estimated by UV-Vis spectrometry at 306 nm. The RSV bioaccessibility was calculated by the quotient between RSV in the micellar phase and digest phase (for SD) and by the quotient between the sum of RSV in jejunum and ileum phase by the RSV in the duodenum (for DD).

The results indicated that, even with CD inclusion, the solubility of RSV in BA was not significantly changed. Cyclodextrin inclusion afforded an increase of RSV bioaccessibility upon digestion (about 24 and 27% in SD and DD, respectively), particularly for  $\gamma$  CD RSV. According to DD results, inclusion of RSV into CDs could be the reason for the increase in RSV bioaccessibility, mainly in the filtered intestinal phases.

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