



# In vitro gastrointestinal digestion and colonic fermentation models of an olive pomace ingredient rich in hydroxytyrosol: antihypertensive, prebiotic, antioxidant and antidiabetic potential



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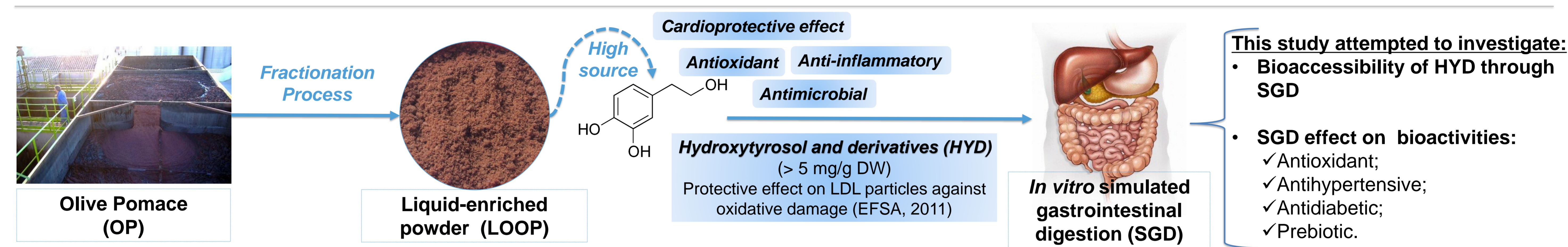
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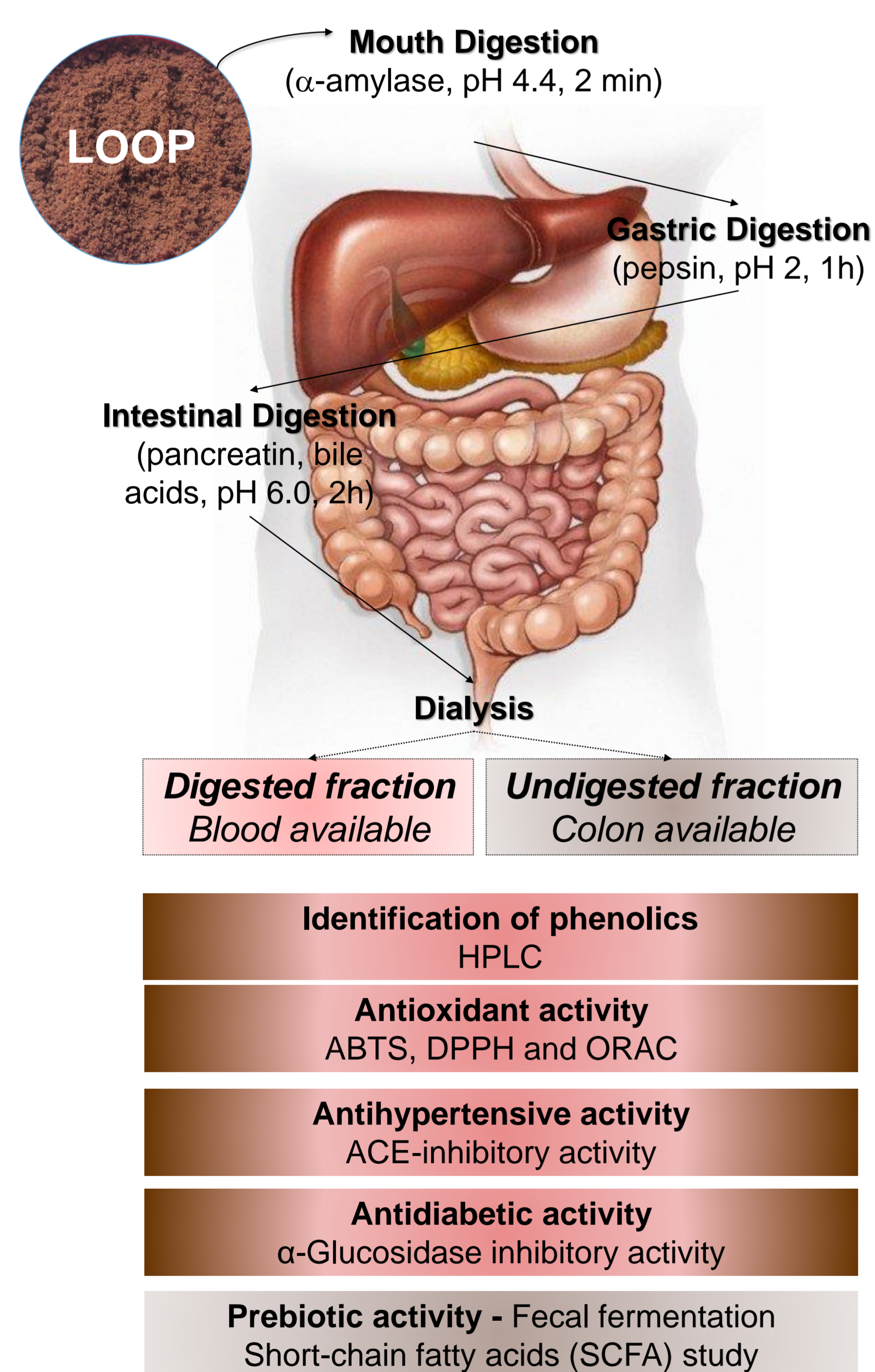


## Introduction



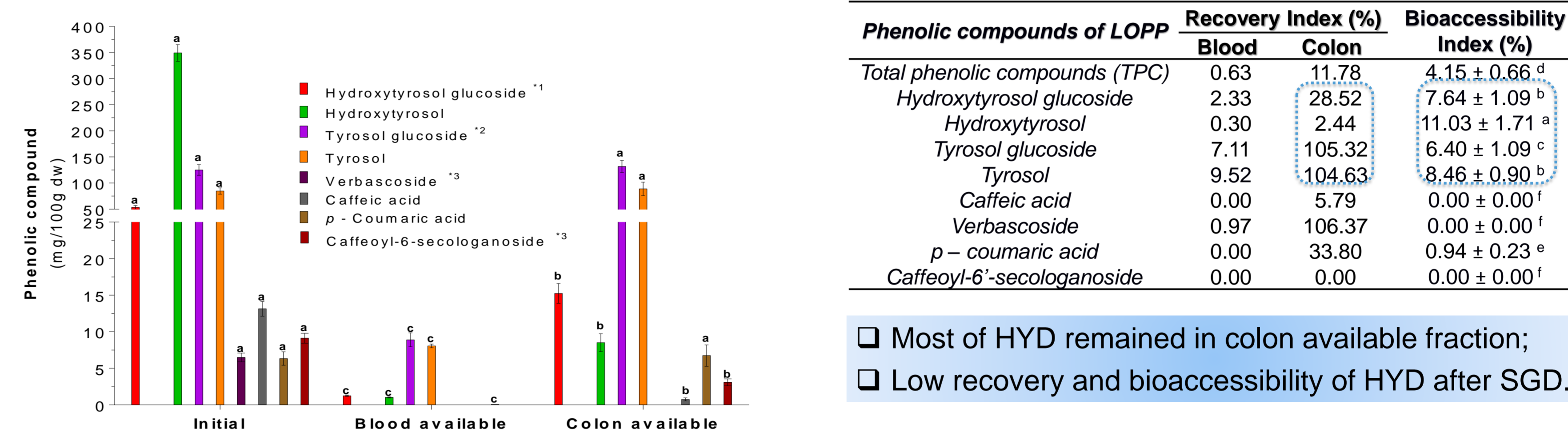
## Methods

### In vitro simulated gastrointestinal digestion

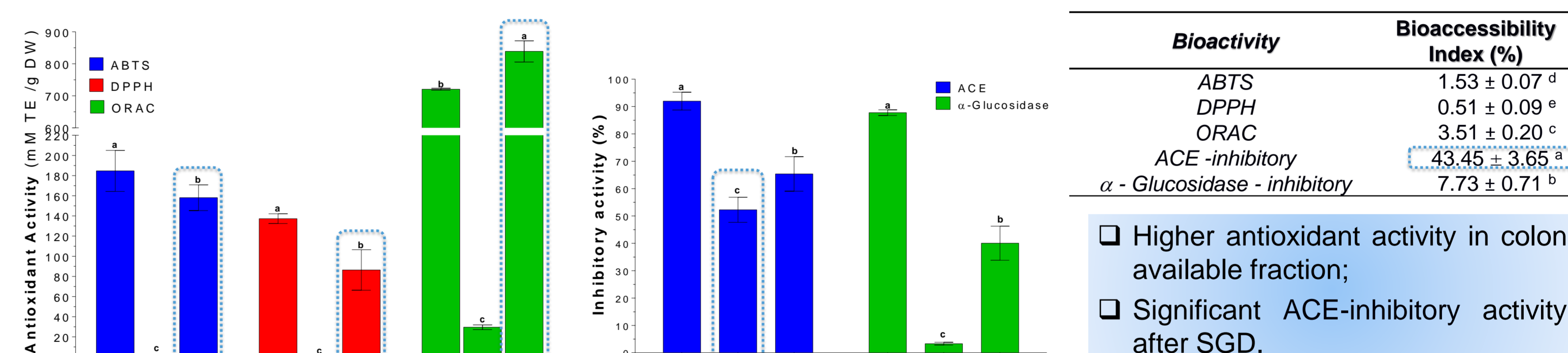


## Results

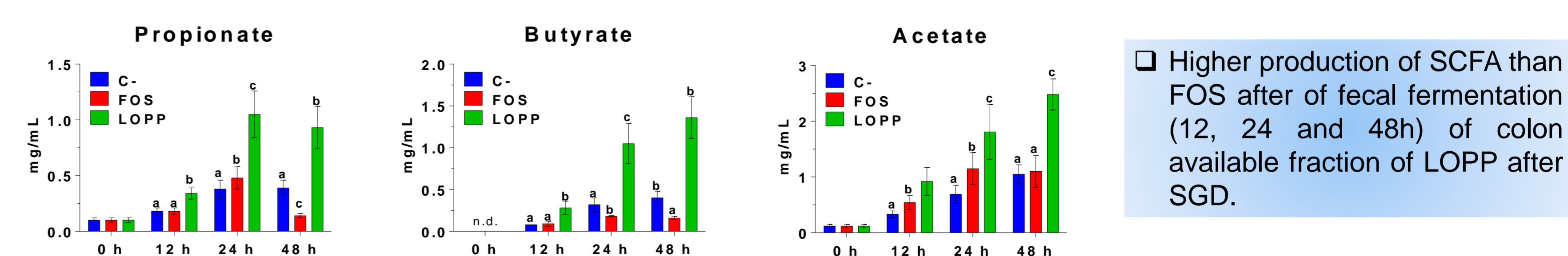
### Bioaccessibility of phenolic compounds



### Bioactivities after in vitro simulated gastrointestinal digestion



### Prebiotic activity



## Conclusions

After SGD most of HYD from LOPP remained in colon available fraction. However, even after SGD LOPP exhibited a significant antihypertensive activity with an ACE-inhibitory capacity of 43%. The superior amount of HYD in the colon allowed to promote the production of short-chain fatty acids (SCFA), namely propionic, acetic and butyric acid.

Therefore, food application of LOPP allowed obtaining benefits related to cardiovascular and intestinal health. Future studies in cell lines and *in vivo* studies are needed before drawing final conclusions from bioaccessibility and potential health benefits from LOPP.

**References:** (1) EFSA. The Effect of Polyphenols in Olive Oil on Heart Disease Risk Factors. *Food Chem.* 2011;49(1):1–25; (2) A. R. Madureira, M. Amorim, A. M. Gomes, M. E. Pintado and F. X. Malcata, *FRIN*, 2011, 44, 465–470; (3) R. Lucas-Gonzalez, S. Navarro-Coves, J. A. Pérez-Álvarez, J. Fernández-López, L. A. Muñozmuñoz and M. Viuda-Martos, *Ind. Crops Prod.*, 2016, 94, 774–782; (4) B. Gullon, M. E. Pintado, J. Fernández-López, J. A. Pérez-Álvarez and M. Viuda-Martos, *J. Funct. Foods*, 2015, 19, 617–628; (5) M. A. Sentandreu and F. Toldra, *Food Chem.*, 2006, 97, 546–554; (6) Y. I. Kwon, D. A. Vattem and K. Shetty, *Asia Pac. J. Clin. Nutr.*, 2006, 15, 107–118; (7) C. M. Oliveira, A. S. Barros, A. C. Silva Ferreira and A. M. S. Silva, *Food Res. Int.*, 2015, 75, 337–347. (8) A. Oliveira and M. Pintado, *Food Funct.*, 2015, 6, 1611–1619.

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