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Dietary lipid protection from oxidation by lingonberry phenolic extracts in in vitro digestion conditions

Oana-Crina Bujor, Valentin I. Popa, Claire Dufour

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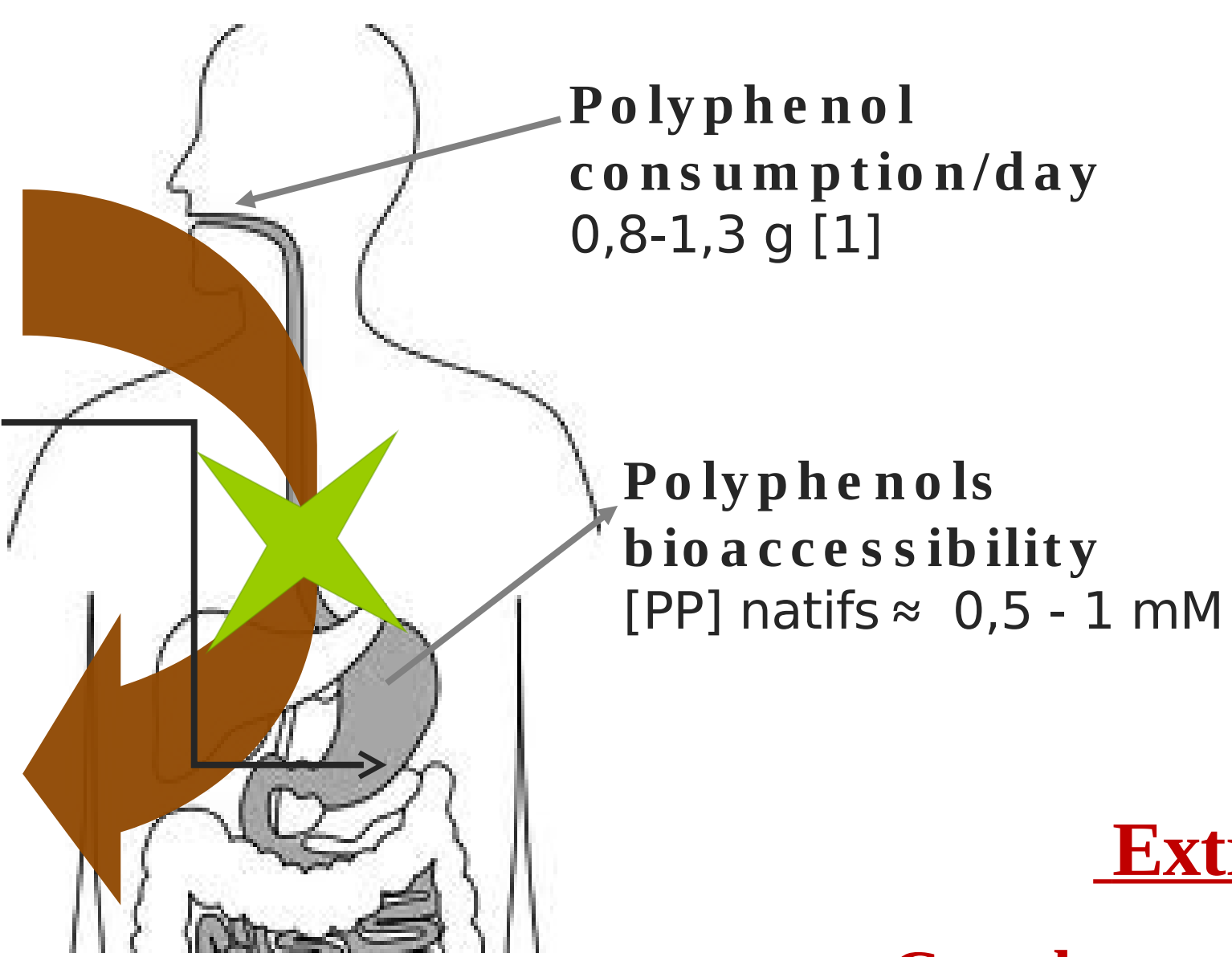
Oana-Crina Bujora,^b Valentin I. Popab, Claire Dufoura

aUMR408 SQPOV "Safety and Quality of Plant Products", INRA, Université d'Avignon, F-84000 Avignon, France
 b"Gheorghe Asachi" Technical University of Iasi, Faculty of Chemical Engineering and Environmental Protection, 700050 Iasi, Romania



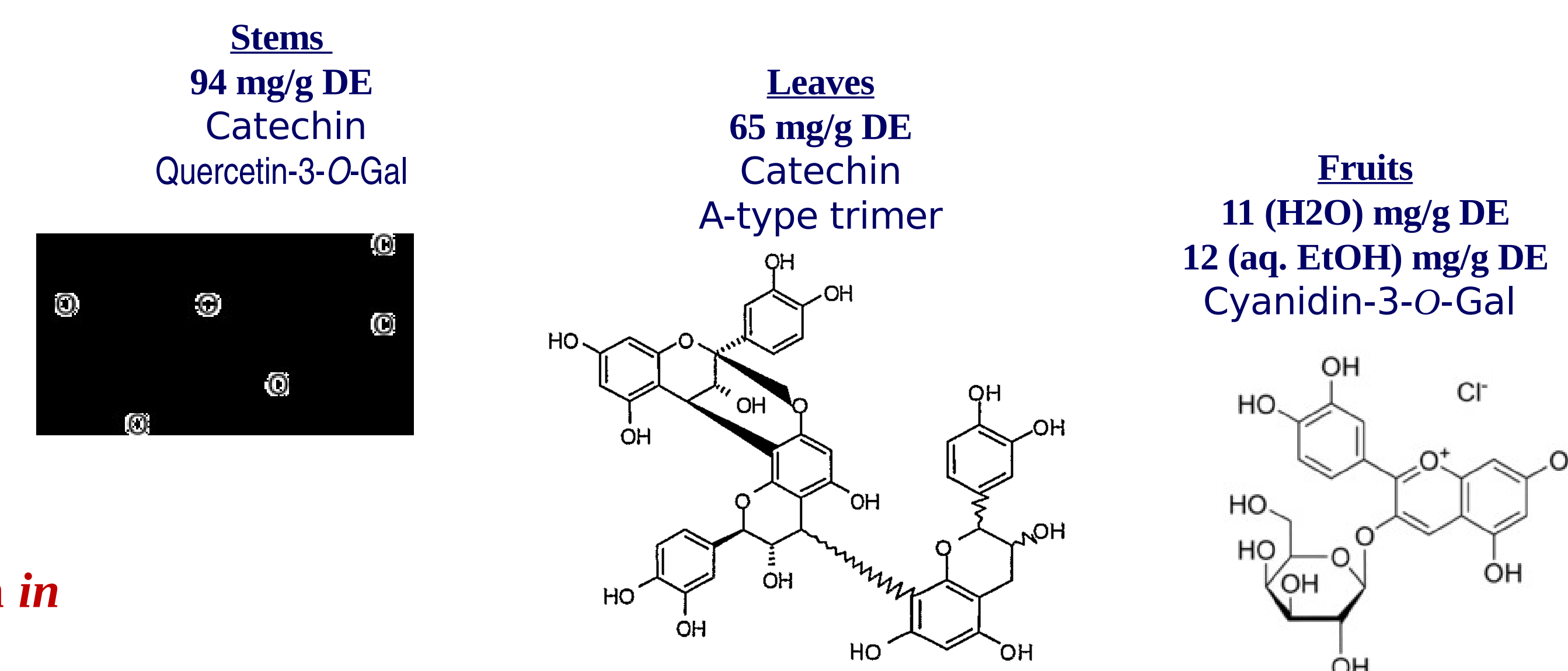
BACKGROUND

Polyunsaturated Fatty Acids (TG, PL, cholesterol esters) + Dietary iron + O₂, H⁺
 Lipid oxidation products (LOOH, L=O, LOH...): [2]
 Absorbed in LDL Atherogenicity of modified LDL



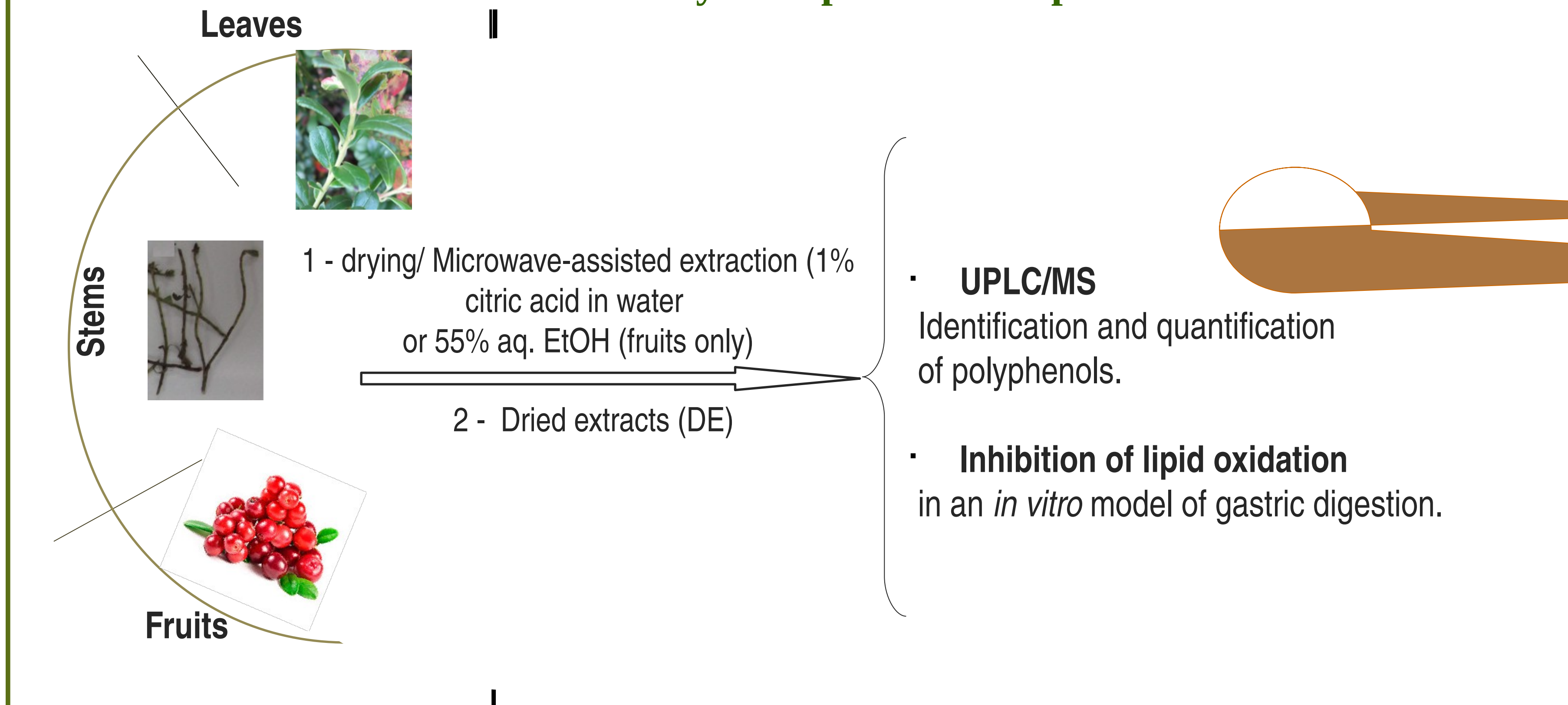
Extracts of lingonberry stems, leaves and fruits:
 Can they protect dietary lipids from oxidation during digestion in *in vitro* conditions?

Lingonberry (LB) (*Vaccinium vitis-idaea* L.) polyphenols: content and main contributors [3]

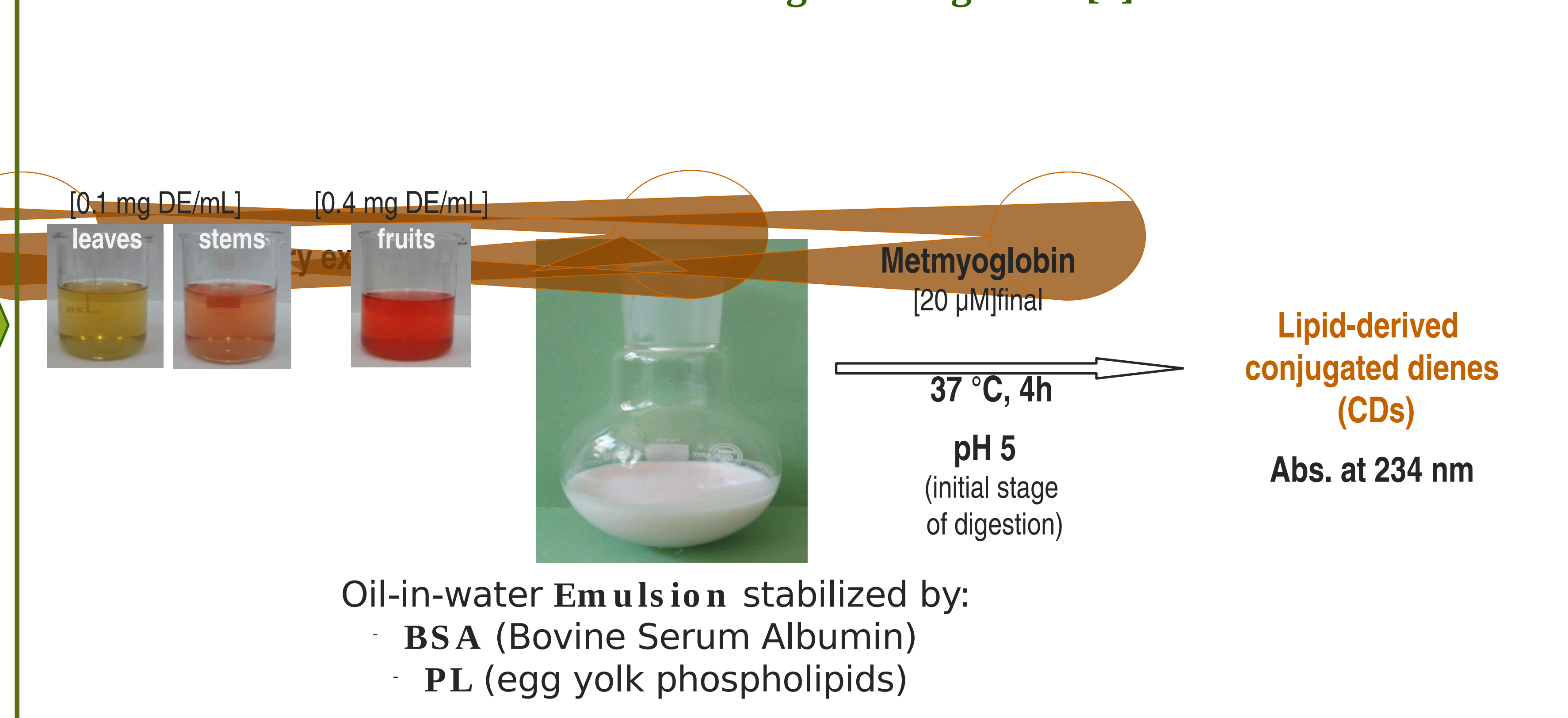


MATERIALS AND METHODS

Extraction and analyses of phenolic compounds

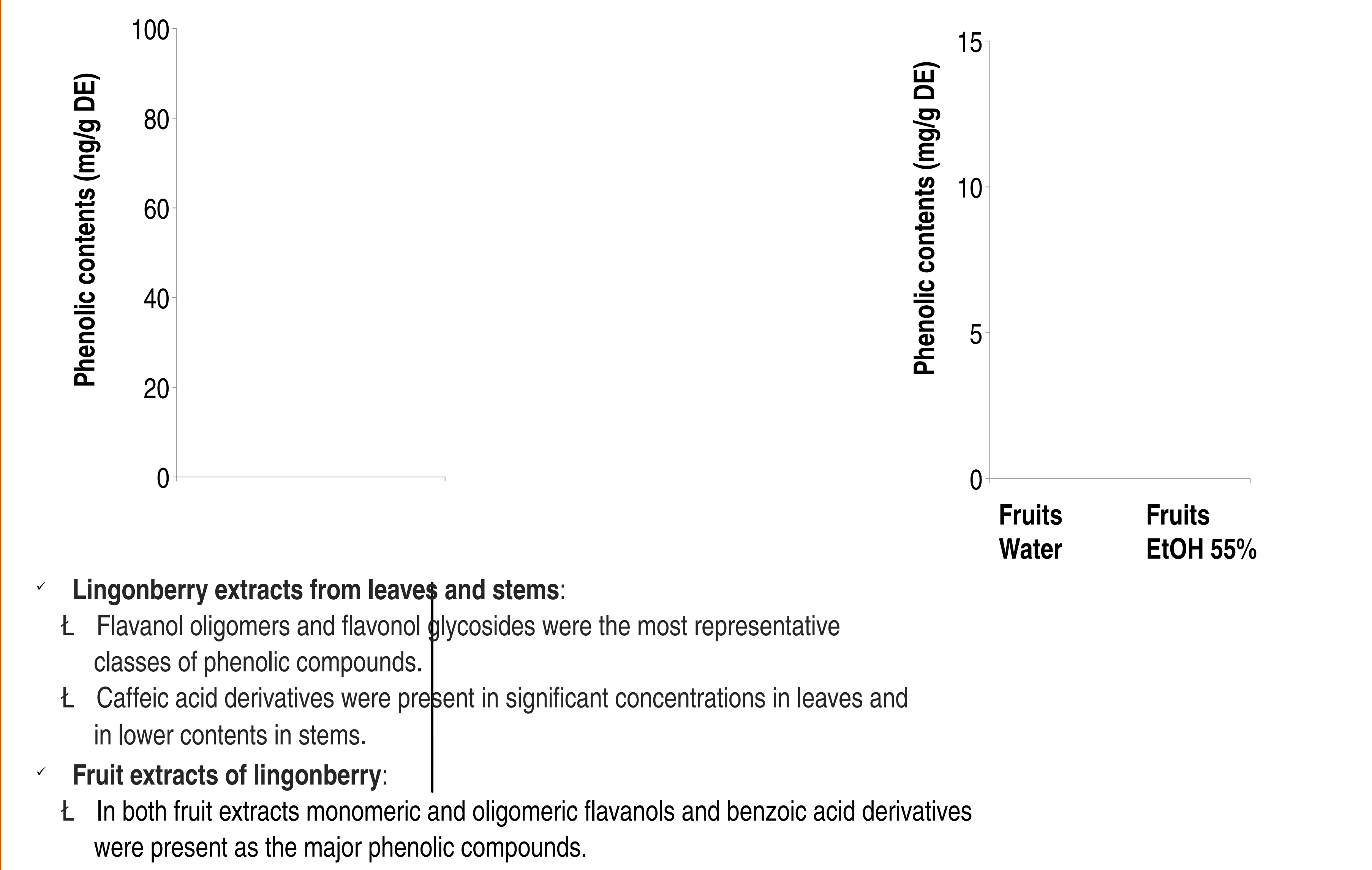


In vitro model of gastric digestion [4]

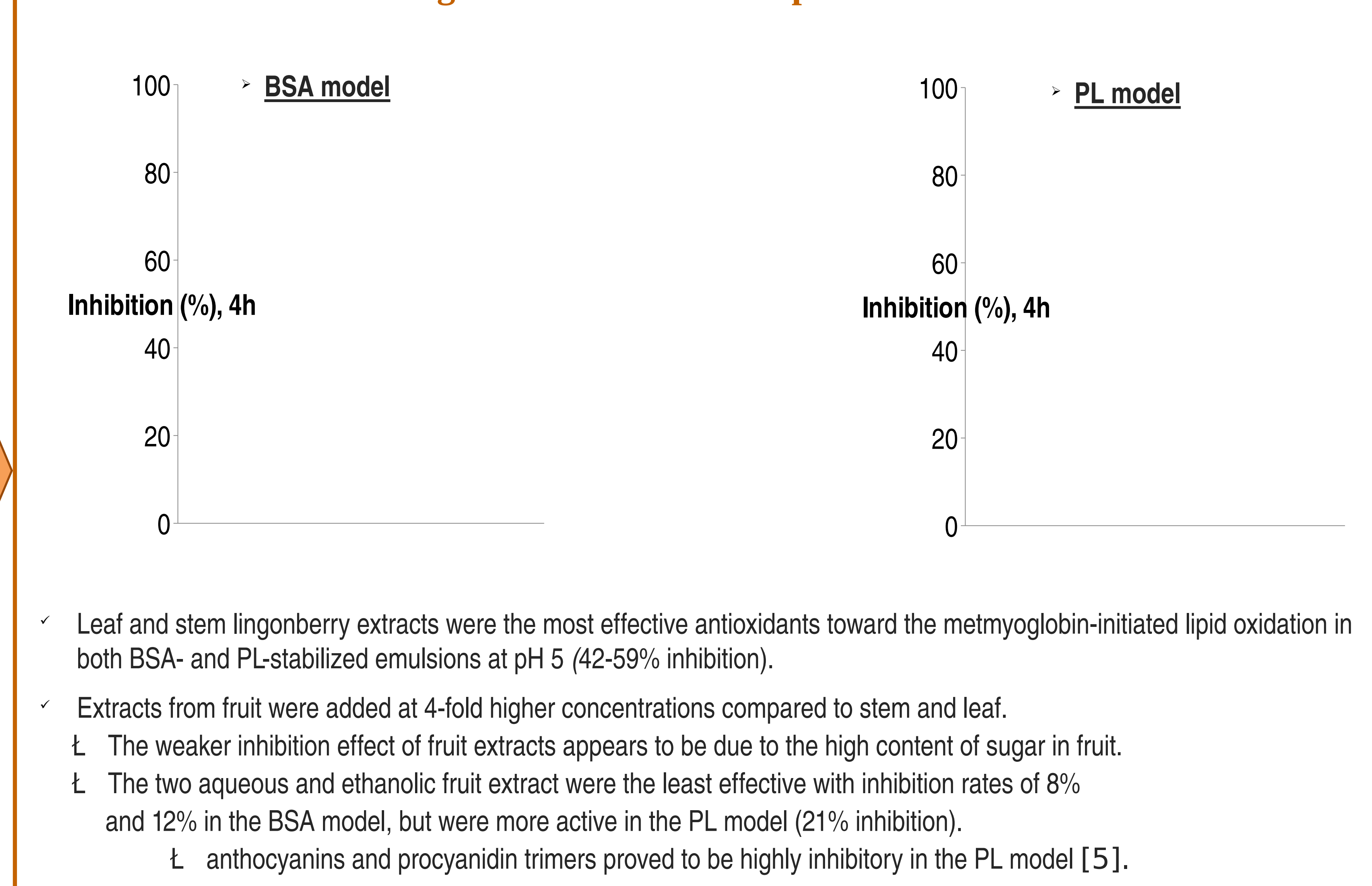


RESULTS AND DISCUSSIONS

Quantification of polyphenols by UPLC



Gastric digestion: Inhibition of lipid oxidation



CONCLUSIONS

Different morphological parts of lingonberry represent a potential source of phenolic compounds.
 Leaf, stem and fruit extracts of lingonberry can play a protective role towards oxidation of polyunsaturated dietary lipids during gastric digestion of a simulated Western diet.

References:
 [1] Pérez-Jiménez J. et al., Am. J. Clin. Nutr., 2011, 93, 1220-8.
 [2] Ursini F. and Sevanian A., Biol. Chem., 2002, 383, 599-605.
 [3] Bujor O-C, PhD Thesis, TUIASI, INRA-Univ. of Avignon, 2016.
 [4] Lorrain B. et al., J Agric Food Chem., 2012, 60, 9074-9081.
 [5] Asprogenidi, K. PhD thesis, Université d'Avignon, 2015.

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