

1 *Conference Proceedings Paper*

2 **Tannins encapsulation for personalized products** 3 **application**

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10 **Abstract:** A Tannins are secondary metabolites of plants, polymers consisting mainly of glycosides,
11 found in nature as hydrolysable tannins or condensed tannins, as well as a combination of them. In
12 the European H2020 funded Stance4Health project, one of the objective is to develop special tannin
13 extracts (from chestnut wood, quebracho wood, oak wood, tara pods, chinese gallnuts) with
14 differential effects on the gut microbiota and human health, aiming for a personalised modulation
15 of gut microbiota activity at the individual level.

16 **Keywords:** tannins; personalization; supplement; athletes; elderly

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18 **1. Introduction**

19 Stance4Health EU Project addresses topic DT-SFS-14-2018: Personalised Nutrition, belonging to
20 the Work Programme 2018-2020 of "Food security, sustainable agriculture and forestry, marine,
21 maritime and inland water research and the bioeconomy". The specific challenge of this topic is to
22 tackle some of society's grand challenges like the development of new, secure and healthier foods
23 while fighting against 21st century NCDs [1-3].

24 One of the objective is to develop special tannin extracts (from chestnut wood, quebracho wood,
25 oak wood, tara pods, chinese gallnuts) with differential effects on the gut microbiota and human
26 health, aiming for a personalised modulation of gut microbiota activity at the individual level [3,4].

27 **2. Materials and Methods**

28 The tannins (from chestnut wood, quebracho wood, oak wood, tara pods, chinese gallnuts) will
29 be extracted by means of water, ethanol or water-ethanol mixtures at different ratios [5,6].

30 Due to their astringency and bitter flavor, will be define how the bitterness can be modify by
31 coating the bitter-tasting tannins extracted using alginate or gum-like or combination of
32 maltodextrin-gum Arabic (ratio of 40:60 (w/w)) formulas to form double-phase emulsion micro-
33 encapsulation or using the spray-dry method to obtain HPMC particles with tannins[7].

34 **3. Results and Discussions**

35 The final product targeted is a powder form that can be easily re-dispersed in water for
36 personalization at individual level [8-13].

37 Besides, it is well-known their antioxidant, antimicrobial (increase the shelf-life of foods) and
38 antibacterial (inhibitor to foodborne bacteria) effects, and therefore their application as food
39 enhancements and food preservatives it is of high importance due to their protective nature.

40 **5. Conclusions**

41 Novel dietary supplements enriched with different tannin extracts in order to exert novel
42 biological activities, will be produced in an individualised manner, being the entry step in the
43 European Food Sector for personalised nutrition.

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