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Maximization of the polyphenols extraction yield from green tea leaves and sequential clarification

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2	clarification
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11	
12	Abstract
13	We designed a parametrical study to optimize the polyphenols liquid-solid extraction in green-
14	tea by clarification by centrifugation followed by microfiltration through a 0.22 $\mu$ m cellulose
15	acetate membrane. Grounding, sieving and selecting the optimal granulometry (0.15-0.74 mm)
16	increased the total polyphenol concentration by 14% compared to unground leaves, while using
17	61% of the initial tea leaves mass. The optimal polyphenols extraction conditions were water-
18	to-tea ratio of 20:1 mL g <sup>-1</sup> , temperature of 80°C, and extraction time of 60 min. The sequential
19	clarification process decreased the turbidity of the extract (from 1197 to 13 NTU), while only
20	reducing the polyphenol concentration by 13%. The permeate of the microfiltration process
21	formed 82% less tea cream than the centrifuged extract after 30 days under refrigeration at 5°C.
22	This sequential clarification is suitable to produce a green tea extract with low turbidity and
23	reduced tea cream.

24

25 Keywords: polyphenols; extraction; clarification; microfiltration; green tea;

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