Research Article

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Influence of brewing conditions on taste components in Fuding white tea infusions

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Abstract

BACKGROUND: White tea has received increasing attention of late as a result of its sweet taste and health benefits. During the brewing of white tea, many factors may affect the nutritional and sensory quality of the resulting infusions. The present study aimed to investigate the effect of various infusion conditions on the taste components of Fuding white tea, including infusion time, ratio of tea and water, number of brewing steps, and temperature.

RESULTS: Brewing conditions had a strong effect on the taste compound profile and sensory characteristics. The catechin, caffeine, theanine and free amino acid contents generally increased with increasing infusion time and temperature. Conditions comprising an infusion time of 7 min, a brewing temperature of 100 °C, a tea and water ratio of 1:30 or 1:40, and a second brewing step, respectively, were shown to obtain the highest contents of most compounds. Regarding tea sensory evaluation, conditions comprising an infusion time of 3 min, a brewing temperature of 100 °C, a tea and water ratio of 1:50, and a first brewing step, resulted in the highest sensory score for comprehensive behavior of color, aroma and taste.

CONCLUSION: The results of the present study reveal differences in the contents of various taste compounds, including catechins, caffeine, theanine and free amino acids, with respect to different brewing conditions, and sensory scores also varied with brewing conditions.

Keywords: ; ; ; ; ; f

INTRODUCTION

[illegible]

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3,18,20,21 30% 22 A 2 14 A 2 39 3 18 3 3 20 A 70% 2 (5-*N*-) 18,23 50% 2,3 3 2,24 24 *et al.*[24] 85 ° 3 *et al.*[1] 6

MATERIALS AND METHODS

Materials and chemicals

(B) B 7.02 100 −1. -A A A

Preparation of infusions

1. A

Table 1.

	(−1)	(°)	B ( )	
1	1:30	100	5	1
2	1:40	100	5	1
3	1:50	100	5	1
4	1:60	100	5	1
5	1:50	90	5	1
6	1:50	80	5	1
7	1:50	100	3	1
8	1:50	100	4	1
9	1:50	100	6	1
10	1:50	100	7	1
11	1:50	100	5	2
12	1:50	100	5	3
13	1:50	100	5	4
14	1:50	100	5	5

Analysis of taste component content

14502-2:2005.[25] ( ) 14502-2:2005. (B/ 23193-2008,).[26] (B/ 5009.124-2003,).[27]

Sensory evaluation

B/ 23776-2009.[28] 10 A 100- (90 99 = , 80 89 = 70 79 =) B/ 23776-2009 (A.7).[28]

Statistical analysis

A ± (A A) 20.0 (B A A). $P < 0.05$

RESULTS AND DISCUSSION

Effect of brewing conditions on individual catechin content

7,21,24,29

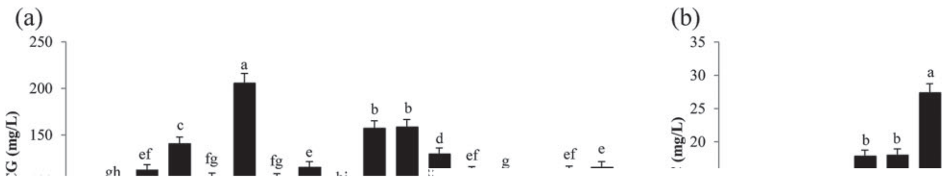

Figure 1.

1.

Al

24

78.143 l $^{-1}$

100 °

3 l

75.569 l $^{-1}$,

140.681 l $^{-1}$ 6 l

7 l (. 1).

5 l

1:50,

80 °

1:30,

($P < 0.05$).

115.611 l $^{-1}$ 100 °.

9

7 l

17.861 l $^{-1}$

7 l

30

et al.[24]

3 l (. 1).

1:30,

1:40.

1:40 (27.38 l $^{-1}$),

1:60

(8.273 l $^{-1}$).

100 °

1

12.281 l $^{-1}$ ($P < 0.05$)

7 l (. 1).

: 1:40 > 1:30 > 1:50 > 1:60.

24

et al.[6]

9.257 l $^{-1}$

(2),

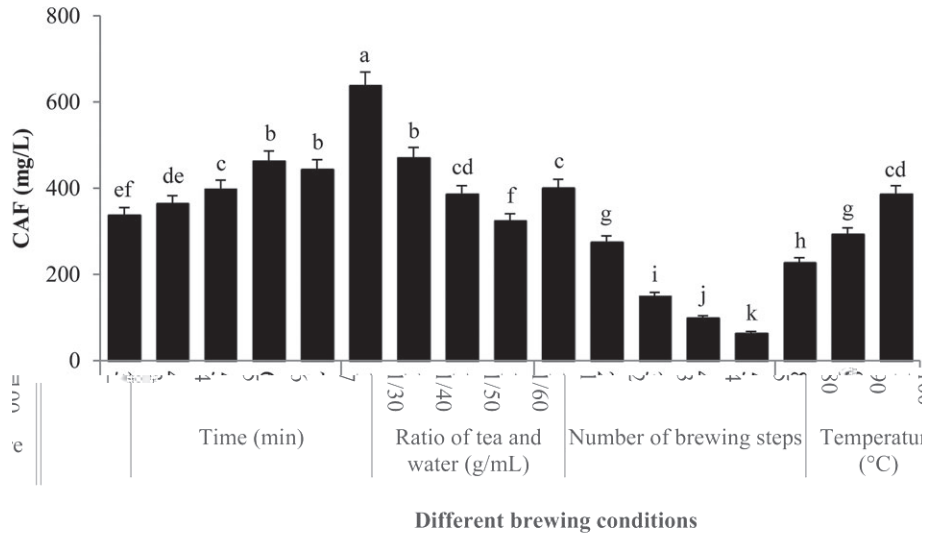

Figure 2.

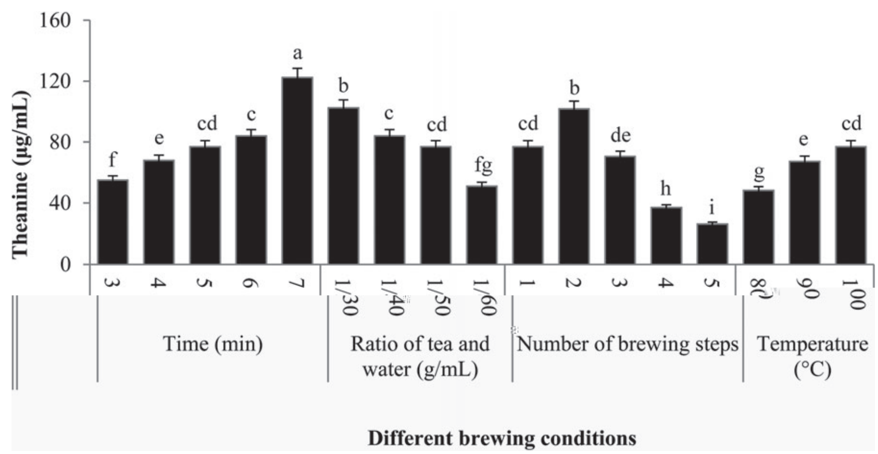

Figure 3.

Effect of brewing conditions on caffeine content

2

462.931 l $^{-1}$ 6 l 7 l

($P < 0.05$). Al

f 5 l

f 1:30,

f 100 °.

Effect of brewing conditions on theanine content

22

3); 7 l

($P < 0.05$).

f 1:30 (102.5 μ l $^{-1}$) f 1:60 (51.1 μ l $^{-1}$).

(101.80 μ l $^{-1}$),

(26.10 μ l $^{-1}$).

A

f 100 °

80 °

($P < 0.05$).

f 7 l,

f 1:50,

f 100 °.

Effect of brewing conditions on the free amino acid content

4, 6).

4).

A A B

A

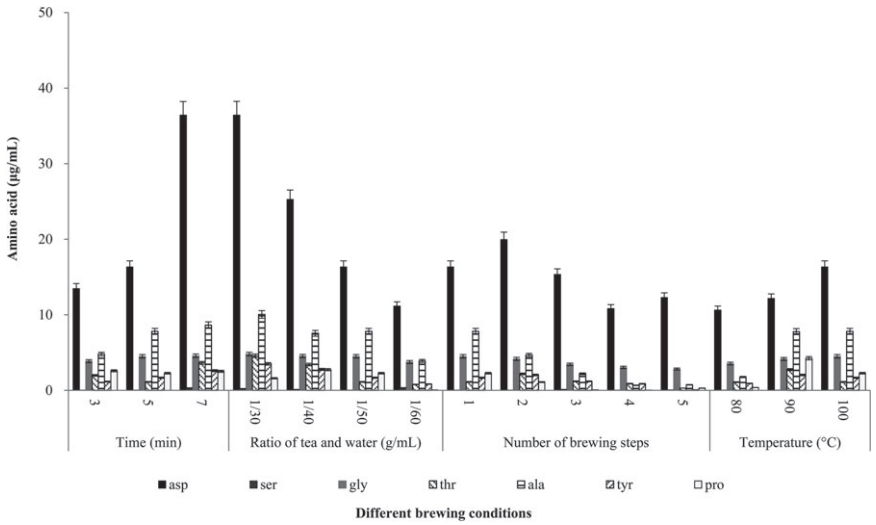

Figure 4.

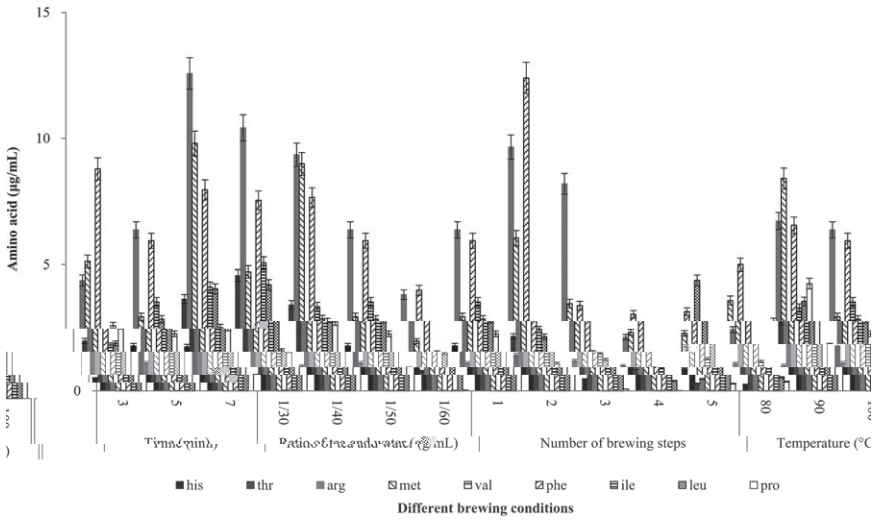

Figure 5.

, 90 °

(*P* < 0.05),

(. .6),

f 1:50

f 1:30.

f 5 l

. 5).

f 7 l ; f 3 l .

f 1:40 (8.99 7.66 μ l $^{-1}$,).

(36.41 μ l $^{-1}$)

Sensory analysis

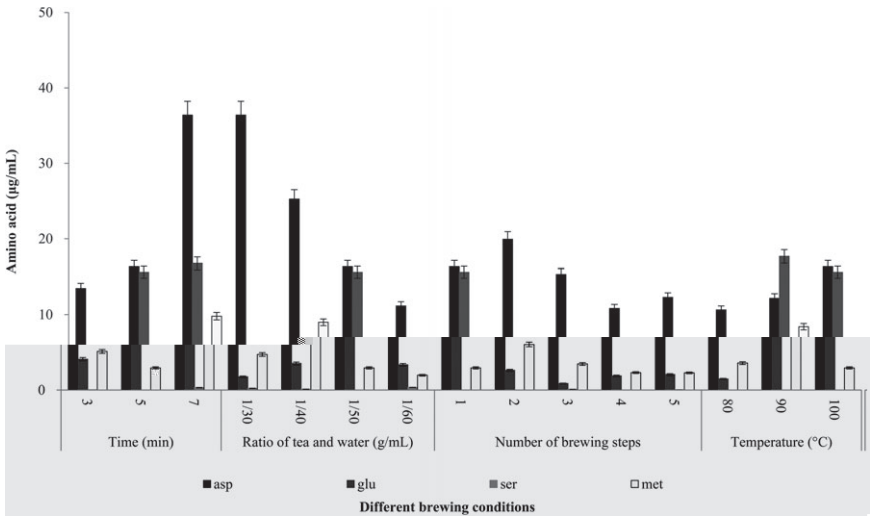

Figure 6.

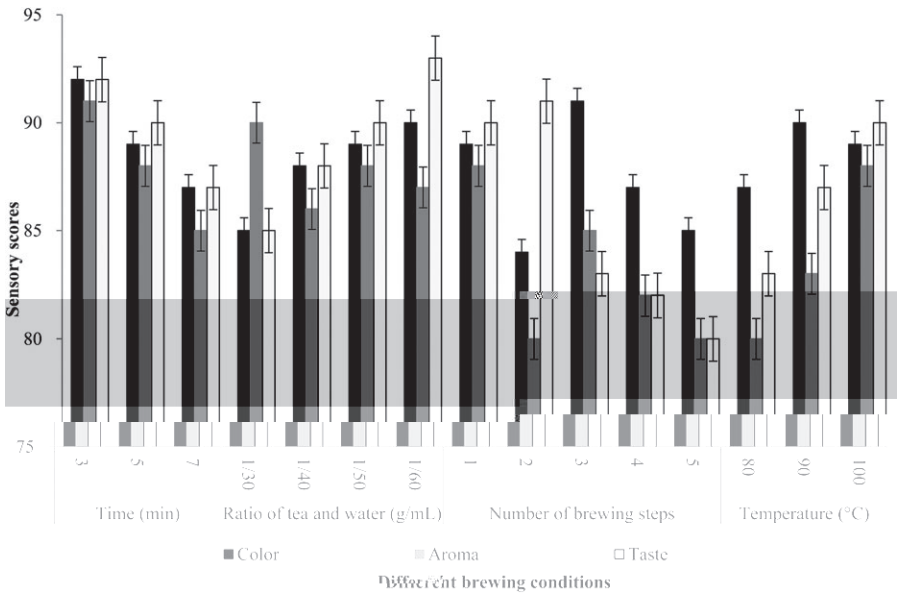

Figure 7.

-3- -3-

1:50, 100 °

CONCLUSIONS

1:30 1:40

1:50, 100 °

ACKNOWLEDGEMENTS

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