Effects of Grain Thickness on 2-AP Content and Physicochemical Properties of Aromatic Rice

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Rice aroma was a comprehensive result of numerous volatiles and human sense. Genetic factor is the main cause for rice aroma. However, the same rice cultivar might result in different aroma quality due to different preharvest and postharvest factors. In this study, effects of grain thickness on 2-AP content and physicochemical properties of aromatic rice was investigated.

Materials and Methods 　　　　　　→This heading should be deleted for the abstract.

1. Materials

Tested aromatic rice cultivars were Jing Xiang No.2 and Jing Xiang 432. . The brown rice of the tested cultivars was sieved and divided into eight grades:＞2.2 mm, 2.2-2.1 mm, 2.1-2.0 mm, 2.0-1.9 mm, 1.9-1.8 mm, 1.8-1.7 mm, 1.7-1.6 mm and＜1.6 mm.

2. Determination of 2-AP by HS-SPME-GC/MS

Headspace solid phase microextraction combined with gas chromatography-mass spectrometry technology (HS-SPME-GC/MS) was used to determine the content of 2-AP in brown rice flour.

3. Physicochemical properties measurement

All of the physicochemical properties were investigated at the International Joint Research Center of Technology Innovation and Achievement Transformation on Palatability of Rice -------------------------------------

Results and Discussion 　　　　　　→This heading should be deleted for the abstract.

1. Mass distribution of brown rice with different grain thickness

It could be seen from Fig. 1 that for Jing Xiang No.2, the mass percentage of brown rice with the thickness of 1.8-2.1 mm was 86.02%, while for Jing Xiang 432, ----------------------------------------------------------

2. Results of 2-AP content in brown rice

With the decrease of grain thickness, 2-AP content in brown rice increased first and then decreased (Table 2 and 3). The 2-AP content in brown rice of Jing Xiang No.2 was higher than that of Jing Xiang 432. For the two rice cultivars, when the grain thickness was 1.9-1.8 mm, the 2-AP content in brown rice was the highest. -------------------------------------------------------------------------

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◆Guideline for your abstract preparation.

- Manuscripts should be typewritten on A4 size (vertical 297 mm by horizontal 210 mm) on two pages including figures and tables. Top and bottom margins are 28.5 mm, right and left margins are 24.5 mm.

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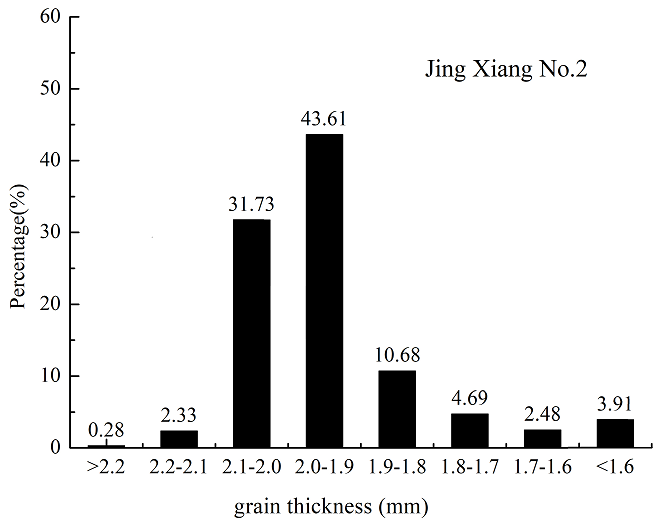
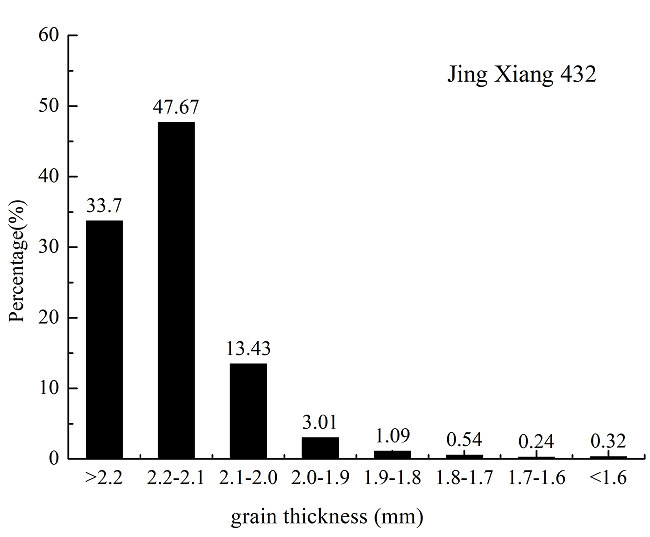
 

Fig. 1 Mass distribution of brown rice with different grain thickness.

Table 2 The content of 2-AP and physicochemical properties of Jing Xiang No.2 rice cultivar.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| Grain thickness  (mm) | 2-AP content  (ppm) | 1000-grain weight  (g) | Protein content  (%) | Amylose content  (%) | H/-H of milled rice |
| >2.2 | 0.0251 | 26.8945 | 7.936 | 20.1635 | － |
| 2.2-2.1 | 0.0346 | 26.8888 | 8.403 | 18.6711 | － |
| 2.1-2.0 | 0.0399 | 26.4429 | 8.59 | 17.7482 | 15.45 |
| 2.0-1.9 | 0.0536 | 25.0585 | 8.739 | 17.6974 | 15.69 |
| 1.9-1.8 | 0.0660 | 22.8767 | 8.902 | 17.5406 | 18.41 |
| 1.8-1.7 | 0.0568 | 20.1439 | 8.914 | 17.1854 | 31.90 |
| 1.7-1.6 | 0.0459 | 17.6304 | 9.203 | 17.1635 | － |
| <1.6 | 0.0386 | 13.6174 | 9.366 | 17.1535 | － |

The samples for 1000-grain weight, protein and amylose content determination was brown rice. H/-H ratio of milled rice was determined by grinding brown rice into milled rice. “－”: no determined.

　　 Keep within 2 pages.

the 2-AP content in brown rice of Jing Xiang No.2 and Jing Xiang 432 was higher than that in other thicknesses. With the decrease of grain thickness, 1000-grain weight and amylose content of brown rice decreased, while protein of brown rice and H/-H of milled rice increased.

If reference is needed, follow the example below.

References

SABARUDDIN Z, MATSUDA T and NITTA Y 2000. Effects of nitrogen application on the development and accumulation of protein bodies in developing rice seed. Plant Production Science 3: 84-93.