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## Low temperature and hypoxia on $\gamma$ -aminobutyric acid accumulation in activated brown rice

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The effects on GABA accumulation of activated brown rice of low temperature, hypoxia and the combination of low temperature and hypoxia were researched on the basis of slow water absorption in this paper. Results showed that 15 °C was better than 4 °C, when the education time was 24 h, the GABA content could reach 14.14 mg/100g DW which was 5.24-fold of that of the raw material; the optimum air condition was 5%O<sub>2</sub>+95%N<sub>2</sub>, when educated 24 h, the GABA content could be 17.94mg/100g DW, which was 6.64-fold of that of raw material, which mean that both low temperature and hypoxia had active effect on GABA accumulation of activated brown rice. When the temperature was 15 °C, air condition was 5%O<sub>2</sub>+95%N<sub>2</sub>, education time was 12 h, GABA content reached the highest, which was 27.81mg/100g DW and it was 10.30-fold of that of raw material, it indicated that both low temperature and hypoxia contributed to the accumulation of GABA content of activated brown rice. Furthermore, in this education condition, the content of free acid showed a tendency that increased before decreasing, soluble protein content had a dramatic increase and then decreased, with time extending, the content of starch decreased while the content of reducing sugar increased; Correlation analysis indicated that the change of GABA content had remarkable correlation to the change of free acid and soluble protein while had highly significant correlation to GAD and Glu content. This study provided methods and theory basis for the production of germinated brown rice with rich GABA which could be milled.

### Biography

Zhenxin Gu is a professor of Nanjing Agricultural University. His research is focused on the functional components accumulation in plant food materials.

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