Shoot Nutrition and Flavor Variation in Two Phyllostachys Species: Does the Quality of Edible Bamboo Shoot Diaphragm and Flesh Differ?

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Shoot Nutrition and Flavor Variation in Two Phyllostachys Species: Does the Quality of Edible Bamboo Shoot Diaphragm and Flesh Differ?

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论文摘要：

For their quality evaluation, it is essential to determine both bamboo shoot nutrition and palatability, which will have a decisive effect on their economic value and market potential. However, differences in shoot nutrition and flavor variation among bamboo species, positions, and components have not been scientifically validated. This study assessed nutritional and flavor differences in two components (i.e., shoot flesh (BSF) and diaphragm (BSD)) of two Phyllostachys species (i.e., Phyllostachys edulis and Phyllostachys violascens) and analyzed any positional variation. Results showed that BSF protein, starch, fat, and vitamin C contents were comparatively higher. Nutrient compounds in the upper shoot segment of Ph. edulis were higher and contained less cellulose and lignin. However, both species' BSD total acid, oxalic acid, and tannin contents were comparable. BSD soluble sugar and sugar: acid ratio were higher than upper BSD total amino acid, four key amino acids (i.e., essential amino acid, bitter amino acid, umami amino acid, and sweet amino acid flavor compounds), and associated ratios were all higher than BSF while also being rich in amino acids. The content and proportion of BSF essential and bitter amino acid flavor compounds in Ph. edulis were high relative to Ph. violascens. Conversely, the content and proportion of BSD umami and sweet amino acid flavor compounds were comparable to that of Ph. edulis. Our results showed that bamboo shoot quality was affected by flavor compound differences and that interspecific and shoot components interact. This study offers a new perspective to determine the formative mechanisms involved in bamboo shoot quality while providing a basis for their different usages.

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