

## Variation in amino acid composition of rice (*Oryza sativa* L.) as affected by the cooking technique

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The study was aimed at investigating the impact caused by the cooking method and the rice type on the amino acid (AA) levels in cooked rice. Four rice types (fully milled raw, non-milled raw, fully milled parboiled and non-milled parboiled) that were cooked using five different methods with rice cooker (RC) and gas cooker (GC) were analyzed for the AA composition using liquid chromatographic techniques. Rinsing prior to cooking accounted for elevation of nutritional gamma amino butyric acid (GABA) levels in raw rice. However, rinsing did not have any significant ( $p < 0.01$ ) impact on the total amino acid (TAA) levels in all rice types while causing inconsistent variations in free amino acid (FAA) levels. Irrespective of the rice type, both total and FAA levels decreased upon cooking. The fully milled raw rice showed the overall highest loss in total FAAs. However, except for the cooking with draining method, fully milled raw rice reported relatively the lowest percentage loss in TAA levels upon cooking. Under identical water to rice ratio (2:1), raw rice types cooked using the GC and RC demonstrated comparable TAA levels. However, for parboiled rice types, rice cooked with RC retained significantly higher TAA levels compared to the rice cooked using the GC. Cooking rice in excess water with draining and cooking with soaking accounted for the overall highest losses in total and FAAs in all raw rice types. During cooking with the draining method, parboiled rice retained higher TAA levels compared to the raw rice types. Study indicates that the change of AA levels in different rice types upon cooking significantly varied with the cooking technique used. Hence, findings highlight the importance of selecting cooking practices that would ensure the optimum AA retention in cooked rice.

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