standard of the second class of rice quality released by the Ministry of Agriculture. The cooked rice of Xinyou 752 is soft and aromatic, the taste quality is superior to that of Shanyou 63 and Shanyou 10.

Relationships between zeatin and zeatin riboside contents and grain filling of rice

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Zeatin (Z) and zeatin riboside (ZR) are naturally-occurring and predominant transportable cytokinins in some higher plants. In this study, the total contents of Z and ZR were measured in grains and roots, respectively, and their relationship with grain filling were analyzed. The grain filling percentage (GFP) and fertilized-grain filling percentage (FGFP) of rice cultivars IR72, IR 65600-42-5-2, IR 65600-127-2-3, and IR 65598-112-2 grown in field and cultivars IR72, IR57298-174-1-1R, IR 72083/IR 57298-174-1-1R, and IR 65598-112-2 in water in green house were examined. Z and ZR contents in grain and root during grain filling stage were measured by enzyme-linked immunosorbent assay (ELISA). It was found that the total content of Z and ZR in grain and root during the grain filling was correlated with GFP and FGFP. The correlation coefficients varied with the filling stages (The grain filling period was almost the same for the six cultivars). At the early filling stage (0-12 d after flowering, DAF), the coefficients were significant at 0.01 level. At the mid-filling stage (13-25 DAF), it was also significant. At the late filling stage (26-39 DAF), it was not significant. The results suggested that Z and ZR in grain and root play an important role in regulating grain filling. It is an effective approach to improve grain filling by increasing cytokinin levels in grain and root at early and mid- filling stage, especially at the early filling stage.

Correlation coefficients of zeatin (Z) and zeatin riboside (ZR) contents with GFP (r_1) and FGFP (r_2)[a].

Days after flowering	Grain				Root	
	ng · g^{-1}(FW)		ng · grain^{-1}		ng · g^{-1}(FW)	
	r_1	r_2	r_1	r_2	r_1	r_2
0-12[b]	0.8689**	0.9429**	0.9565**	0.9103**	0.9179**	0.9376**
13-25	0.6588	0.6946	0.8076*	0.8669**	0.8872**	0.8488**
26-39	−0.6969	−0.6189	−0.1511	−0.2537	0.3205	0.3272
0-39	0.7898*	0.8716**	0.9535**	0.9203**	0.9169**	0.9130**

[a] GFP = Filled grains (specific gravity > 1.05) per m^2/spikelets per m^2 × 100% and FGFP = 1 000-fertilized-grain weight / 1 000-filled -grain weight × 100%; [b] 0-12 represented the mean of five determinations at 0, 3, 6, 9, 12 d after flowering (DAF), 13-25, the mean of four determinations at 15, 18, 21, and 24 DAF, and 26-39, the mean of four determinations at 27, 30, 33, and 39 DAF; * and ** were significant at 0.05 and 0.01 level, respectively.