

**Title** Effect of the absence of lipoxygenase isoenzymes on the storage characteristics of rice grains  
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#### **Abstract**

Three varieties of paddy rice with and three varieties without lipoxygenase (LOX) isoenzymes were stored at room temperature, in dark conditions for 42 months. Insect damage and viability were investigated during that time. Varieties without LOX-1,2 and their offspring were screened with a rapid method of estimating LOX isoenzymes, and subjected to an accelerated-ageing experiment. The results indicated that in varieties without LOX-1,2, after long storage, rice quality was normal, but for varieties with LOX-1,2, rice quality deteriorated. With increase of storage time, the germination rate of the seed of most varieties decreased greatly except for varieties without LOX-1,2 where there was almost no change in the germination rate. In varieties without LOX-1,2 and their offspring, after an accelerated ageing experiment the germination rate of some varieties changed slowly, but with others, the germination rate changed quickly. This indicated that a definitive factor, which influenced the life of seeds, may be the loss of LOX-1,2. During storage, there was also a significant difference in the degree of insect damage. In varieties without LOX-3 insect damage was lower, but in varieties with LOX-3 insect damage was higher. Therefore, the absence of LOX-3 may be very important in insect resistance in rice grain.