

CHAPTER I

INTRODUCTION

Rice (*Oryza sativa* L.) has been a staple food for most population in the world for centuries. Statistical data indicated that the global rice production during 2006/2007 was 420.6 million tons whereas the overall consumption of rice was 423.6 million tons (USDA, 2007). The demand of rice from the world's population has still been elevated. In 2007, approximately 18.6 million tons of rice was cultivated in Thailand (USDA, 2007) and approximately 9.55 million tons were exported, with the value of 3,592 million US dollars. This export value was approximately 40.7% higher than that in 2006 (Department of Foreign Trade, 2007). An increase in global exports of Thai rice was forecasted (Childs, 2007).

"Red jasmine rice" or "Khao Hom Ma Li Dang" (*Oryza sativa* L.) is one of the Thai fragrant rice cultivars which naturally mutated from Khao Dawk Mali 105 (KDML-105). The unique characteristic of hulled red jasmine rice is that it has red pericarp which contains high level of phenolic antioxidants (Suttajit, 1999). Thai red jasmine rice, organically grown in Northeastern part of Thailand, has been exported to some European countries. The exported product requires a long period of time, approximately 1 month, before reaching the consumers. Therefore, rice qualities may change undesirably. Many studies have shown that postharvest parameters, including drying method, drying temperature, conditions and duration of storage greatly affected the thermal and pasting properties of rice flour as well as texture and aroma of cooked rice (Sowbhagya and Bhattacharya, 2001; Pearce, Marks and Meullenet, 2001; Wiset, Srzednicki, and Driscoll, 2003; Zhou et al., 2003; Wongpornchai et al., 2004; Borompichaichartkul et al., 2005; Tulyathan and Leecharatanaluk, 2007). However, there is no published data regarding the quality changes of hulled red jasmine rice as affected by different postharvest treatments.

The objective of this current research was to investigate the effects of paddy rice drying as well as packaging materials, storage temperatures and storage duration of hulled red jasmine rice on its qualities.