Title Structural analysis of relationship between fruit quality and heating method in Japanese chestnut (*Castanea crenata* Sieb. Et Zucc.)

Author Takashi Honma, Hiromichi Hara, Eiichi Inoue and Toshiaki Matsuda

Citation Abstracts of 27th International Horticultural Congress & Exhibition (IHC 2006), August 13-19, 2006, COEX (Convention & Exhibition), Seoul, Korea. 494 pages.

Keywords Japannese chestnut; structure; quality; heating method

Abstract

Three Japanese chestnut (*Castanea crenata*) cultivars ('Tsukuba', 'Riheiguri' and 'Imakita') were collected at optimum harvesting time and stored at 1°C in polyethylenes bag with a thickness of 0.08mm. Changes in the finestructure of chestnut cotyledons after roasting at 150°C for 40min or steaming for 40min were investigated with scanning electron microscopy. In addition, we also determined two major quality factors, soluble sugars and starch contents. In steamed chestnut, a mesh-like structure was observed that was caused by gelatinization of starch in all cotyledons. In roasted chestnust, a mesh-like structure wasobserved only in inner (adaxial) side of cotyledons. The outer layer of cotyledon (abaxial side) had collapsed and become a plate-like structure that was caused by high temperatures during baking. The amount of soluble sugars and starch changed during roasting and steaming. These changes affected texture of chestnuts that was a major factor for tasting quality.