（別紙様式－３）

平成 28 年 6 月 23 日

学位（博士）論文内容の要旨

１．論文申請者　　環境園芸学専攻　　生物資源科学　　コース

（ふりがな）コウィチャロエン ラダワン

平成 26 年度入学　学生証番号 14HD2103　氏　名 KOWITCHAROEN LADDAWAN

２．論文題名（外国語の場合は、その和訳を併記）

The drought tolerant mechanism in sugar apple trees and the effect of drought stress on sugar apple fruit

（シュガーアップル樹における乾燥耐性機構および乾燥ストレスが果実に及ぼす影響）

３．論文概要（６００字程度）

The drought tolerant mechanism in sugar apple (*Annona squamosa* Linn.) trees and the effect of drought stress on sugar apple fruit were investigated. Endogenous ABA and ascorbic acid concentrations in leaves and fruit increased under drought conditions. In contrast, the stomatal aperture in leaves decreased under drought conditions. The EC_{50} values of O_2^- scavenging activity in leaves and fruit, the net photosynthesis, stomatal conductance, chlorophyll fluorescence, and leaf relative water content were decreased under drought conditions.

Drought induced total sugar and proline accumulation in the fruit. In addition, endogenous ABA, glucose, fructose, and ascorbic acid concentrations increased, but DPPH EC_{50} value decreased in drought-treated fruit at harvest. During cold storage, respiration and ethylene, endogenous ABA, sugar, and ascorbic acid concentrations, and antioxidant activity increased, but fruit firmness decreased in drought-treated fruit. These changed more slowly at 10 °C than at 15 °C. The results suggest that the increase of endogenous ABA and ascorbic acid concentrations may be associated with the drought-tolerance system. The drought condition before harvest may improve fruit quality in sugar apples, and induce fruit ripening and antioxidant activity after harvest and during storage.

４．学位に付記する専攻分野の名称　　博士（　農学　）

主任研究指導教員氏名　　近藤 悟