（学位第３号様式）

学 位 論 文 要 旨

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題　目	Developmental Studies of Production Methods for Seedless Pollination-Constant Non-Astringent (PCNA)-Type Fruits in Japanese Persimmon (*Diospyros_kaki* Thunb.) (無核性完全甘ガキの生産技術開発に関する研究)

In this study, I aimed to produce non-astringent type of seedless persimmon fruits both through breeding and cultivation.

Chapter 1. Colchicine treatment of the meristem of seedlings in vitro was effective at a concentration of 0.03-0.05% for 12-24 hours. Induced dodecaploid seedlings generally showed weak vigor, but some vigorous seedlings could be obtained. Since the pollen of the induced dodecaploid seedlings has germination ability, the seedlings could be parental stocks for the breeding of nonaploid PCNA persimmons.

Chapter 2. Summer shoots growing from water shoots by pinching from May to June bear many pistillate flowers and fewer staminate flowers than normal shoots. Pinched water shoots that never sprouted a summer shoot also bear almost the same numbers of pistillate flowers and fewer staminate flowers as compared to normal shoots. They became stable seed parents in the next year.

Chapter 3. I aimed to obtain nonaploid seedlings from imperfect seeds by embryo culture using a cross between hexaploid cultivars, and furthermore to clarify the origin of nonaploid embryos from imperfect seeds. Two nonaploid seedlings were recovered from the imperfect seeds and grew vigorously. Parental analysis using four SSR markers showed that each nonaploid seedling had alleles originating from the parents that indicating they were generated by syngamy. The two nonaploid seedlings might be derived from fertilization of a reduced female gamete with an unreduced male gamete.

Chapter 4. We developed nonaploid PCNA persimmon cv. 'Fukuoka K1 Gou' (TM; Akiou) by embryo culture of imperfect seeds derived from a cross between 'Fuyu' and 'Taishuu'. 'Fukuoka K1 Gou' bears PCNA type fruits with seedless. 'Fukuoka K1 Gou' fruit ripens from mid-October to early November. Both spraying 200ppm gibberellin spray to fruit at 10 days after full bloom and disbudding were effective for improve of fruit set.

Chapter 5. I investigated fruit set and fruit quality of a hexaploid 'Fuyu' pollinated with pollen from nonaploid persimmon to explore the possibility of a novel cultural practice for seedless 'Fuyu' fruit production. Although a much higher rate of fruit set was observed with pollinated 'Fuyu' than non-pollinated ones, the fruit set rate was lower after pollination with pollen from nonaploid plants (nonaploid pollination) than from hexaploid plants (hexaploid pollination). The growth of the seeds from nonaploid pollination slowed down and finally stopped. Fruit from nonaploid pollination was almost indistinguishable from that from hexaploid pollination.