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Growth characteristics and variation in component of sweet potato (*Ipomoea batatas*) cultivars according to cultivation period

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Abstract

Cultivated varieties of sweet potato were from dry texture type to tender texture type on the basis of consumer preferences. There are many differences in the quantity of sweet potato, starch content, pigment, and sugar content depending on the cultivation season and area, even in the same variety. Therefore, in this study, we attempted to establish optimum time of harvesting through growth characteristics and variation in component like starch, sugar, polyphenol and flavonoid. Four sweet potato varieties were used in this experiment. Among them, Jinhongmi (JHM) & Yulmi (YM) were as dry texture type and Pungwonmi (PWM) & Hogammi (HGM) were as tender texture type. Sweet potatoes were transplanted on 23 May, 2016 and were investigated storage root weight and component contents every 20 days from 60 days to 120 days and surveyed yield at 110, 120, 130 days after transplantation. Result revealed that storage root weight of YM, JHM, and HGM were 30.1, 38.9, 20.8 g respectively in 60 days after transplanting. Storage roots of PWM gerw faster with the weight of 88.2 g. In 120 days after transplanting, storage root weight varied from 88.3 to 118.7 g, HGM was the smallest, and PWM was the largest. Sugar contents of sweet potato ranged from 21.0 to 23.8 Brix° in 60 days after transplanting and from 27.5 to 30.78 Brix° in 120 days after transplanting. In particular, the sugar content of HGM was the highest over 30 Brix° after 80 days. The starch content of dry texture type (YM, JHM) increased from 15.5% to 20.4% and tender texture type (PWM, HGM) increased from 11.0% to 17.3%. Starch content tended to be high in dry type sweet potatoes. The content of polyphenol and flavonoid were highest in 60 days after transplanting and was reduced according to cultivation period. The total yield of PWM was high as 3,154 kg/10a and large storage root of over 250 g accounted for 47.4% in 110 days after transplanting. Storage root (YM, JHM, HGM) of 81~150 g accounted for 34.9% ~ 43.2% in 120 days after transplanting. These are the most marketable. Because consumer in Korea prefers small, round and about 100g size sweet potato. The ratio of large storage root (over 250 g) were increased in all varieties at 130 days after transplanting. Therefore, it is considered appropriate to harvest PWM at 110 days and YM, JHM, HGM at 120 days after transplanting, which planted in late May.

Keywords: sweet potato, cultivation, storage root

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