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Comparison of Characterization of Yield and Browning of Potato breeding Lines for a New Variety in Single Cropping

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[Introduction]

Domestic Potato (*Solanum tuberosum* L.) production was around 0.56 Mt, and the 'Sumi' variety that occupies 65~70% of cultivation area in Korea was 'Sumi'. Recently, production and quality in 'Sumi' was decreased due to high temperature and drought environments. The browning by peeling or cutting in 'Sumi' progresses rapidly, and it was insufficient for a fresh cut. it is necessary to breed varieties with adaptability to environmental stress and good fresh cut quality.

[Materials and Methods]

We carried out preliminary(PYT) and replicated yield trials (RYT) using spring and summer cultivations in each trial in Gangneung(8m) and Pyeongchang(770m) fields of the HARI. We used 17 lines in PYT and 10 lines in RYT in 2021 and used 'Sumi' for Control. the breeding lines were cultivated according to standard cultivation by cropping seasons. 10 plants per line were harvested after 100 days after planting and evaluated for production(Tuber weight per plant(g/plant), etc), and physiological disorder (Growth crack, etc). it was measured Hunter's value(L, a, b) of browning over time after grinding(0, 1, 3, 6 h) using a colorimeter (CR400/410, Konica Minolta, Japan) for fresh cut quality

[Results and Discussion]

We evaluated potato breeding lines in PYT and RYT in 2021. 'S17005-2' and 'S17033-1' were selected in PYT, and the tuber weight per plant of these lines was 715.7g/plant and 734.8g/plant. The Physiological disorders rate was lower, and Hunter's L value of 6h after grinding in 'S17005-2' and 'S17033-1' was 46, and 52, higher than 'Sumi'. Tuber weight per plant of 'S16004-7' was selected in RYT was 924.1g/plant, similar to 'Sumi'. But this line had a good fresh cut trait that browning is slower than 'Sumi' after grinding. The breeding lines selected in PYT and RYT in 2021 are being evaluated in the RYT and regional adaptability field test in 2022. It was expected to have new varieties with good production and fresh cut trait.

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