

Flowering and fruiting characteristics of ginseng cultivar 'Cheonryang'

Jung-Woo Lee*, Jang-Uk Kim, Sung Min Jung, Nayeong Kwon, Sung Woo Lee

Department of Herbal Crop Research, National Institute of Horticultural and Herbal Science, Rural Development Administration, Eumseong 27715, Republic of Korea

Background

Korean ginseng is a crop that takes a long time, more than three years, from flowering to fruiting. Therefore, it takes a long time to distribute ginseng cultivars to farmers. A new salt-tolerant cultivar, Cheonryang, was developed in 2011, but its distribution to farms is insufficient due to its low propagation rate. However, information on flowering and fruiting of Cheonryang is still lacking.

Methods and Results

The flowering and fruiting characteristics of the Cheonryang were investigated. Chunpoong, Yunpoong, and Geumpoong were investigated as comparative cultivars. All investigations were conducted on plants growing in the 5-year-old fields of the Department of Herbal Crop Research located in Pyeongchang. The flowering investigation was conducted in mid-May and the fruiting investigation was conducted in early August. Ten samples of each cultivar were investigated, and this process was repeated three times. As a result, Yunpoong had the largest number of flowers at 108.8, while the remaining cultivars had 78.5-85.2, with no significant difference. On the other hand, the fruiting rate was 44.1% in the Cheonryang cultivar, which was significantly lower than that of other cultivars. In addition, the number of fruits for the Cheonryang cultivar was 37.6, which was less than half of the number for the Yunpoong cultivar. As a result of examining the number of seeds in the fruit, it was observed that the ratio of two seeds per fruit was lowest in Cheonryang. Accordingly, the number of seeds per Cheonryang individual was 51.1, which was significantly lower than that of other cultivars. On the other hand, the weight of Cheonryang's fruit was confirmed to be heavier than that of other cultivars.

Conclusion

It was confirmed that Cheonryang had lower seed production efficiency than other cultivars. To distribute low-yield cultivars to farms, it is believed that detailed research on mass propagation and improvement of seeding efficiency must be conducted.

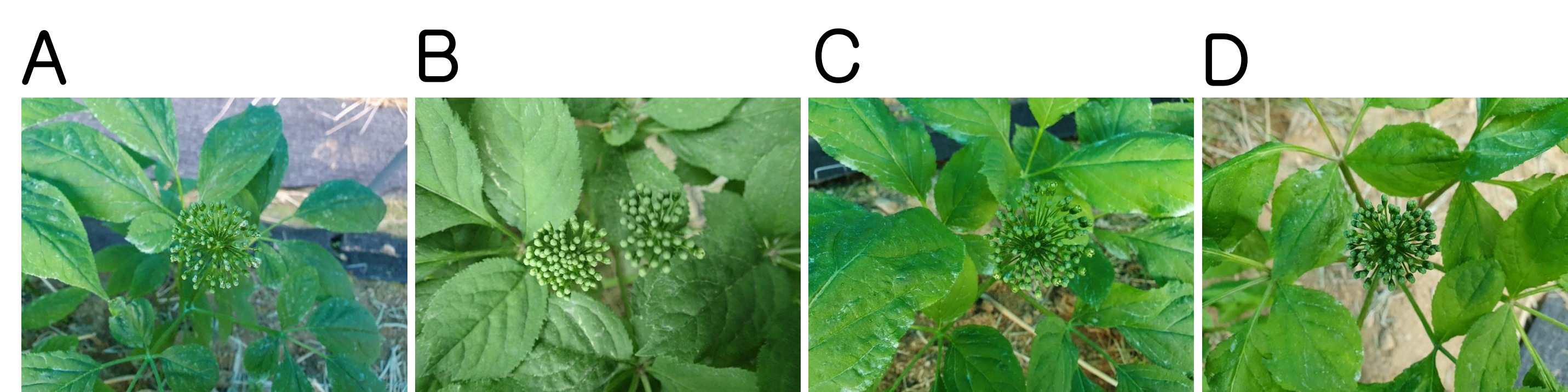


Fig. 1. Phenotype of flowering by ginseng cultivars. A; Chunpoong, B; Yunpoong, C; Gumpoong, D; Cheonryang.



Fig. 2. Phenotype of fruiting by ginseng cultivars. A; Chunpoong, B; Yunpoong, C; Gumpoong, D; Cheonryang.

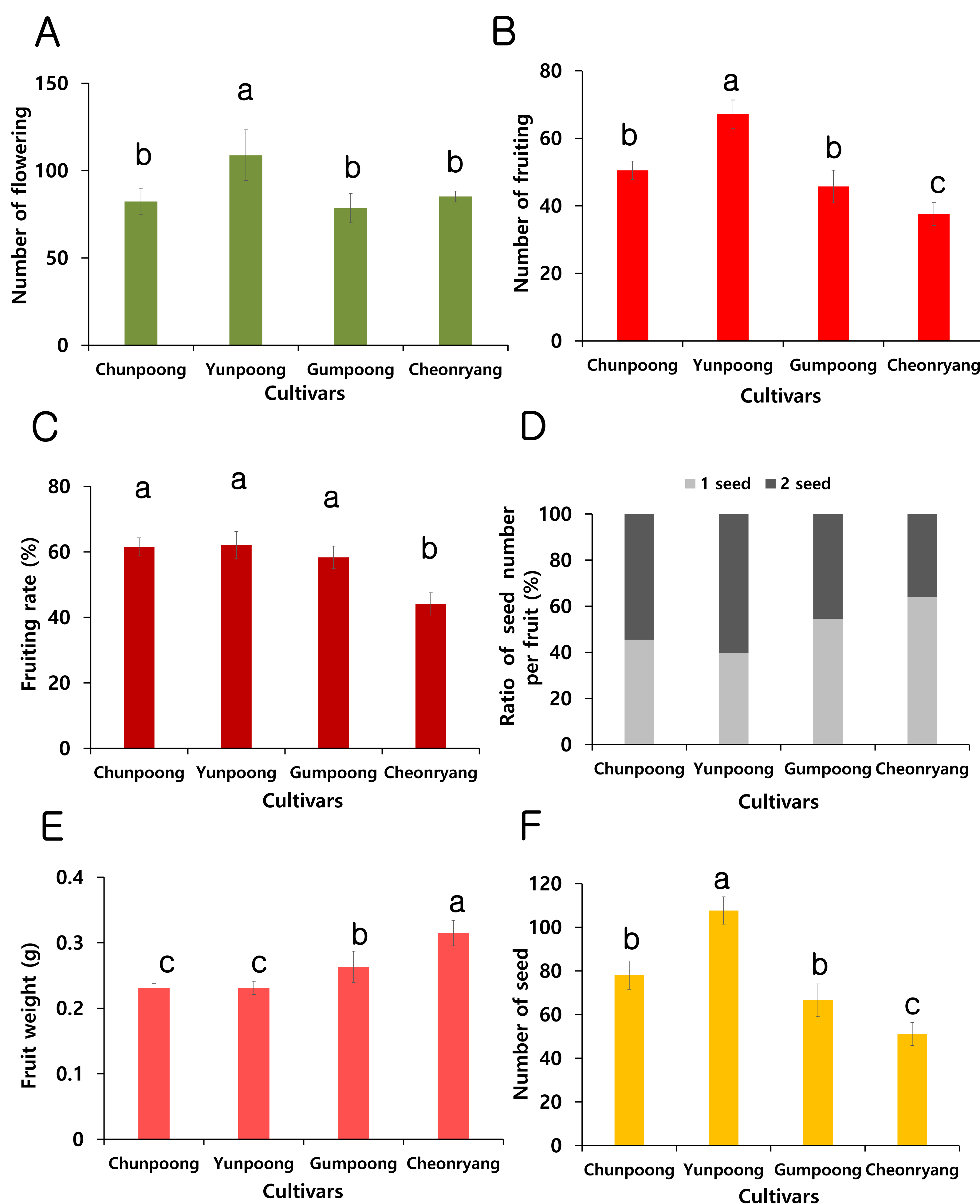


Fig. 3. Flowering and fruiting characteristics of ginseng cultivars A; The number of flowering number per plant, B; The number of fruiting per plant, C; Fruiting rate, D; The ratio of seed number per fruit, E; Fruit weight, F; The number of seed per plant. Non-significant or significant differences were determined by an ANOVA test. Different letters within each column represent a significant difference at $p \leq 0.05$ based on Duncan's multiple comparison test.