

**PA-028**

## ***Rhodobacter johrii* KS03 Reprograms Sesame Growth during Flooding Stress**

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### **[Introduction]**

In paddy fields, crops are subjected to flooding stress because of weak drainage. Photosynthetic bacteria mostly inhabit in humid areas like paddies rice and settle well in anaerobic soil. Therefore, in this study photosynthetic bacteria were used for the better growth and production of sesame seeds in paddy fields.

### **[Materials and Methods]**

We collected 14 samples from Namwon, 15 from Geoje, 9 from Pohang, 11 from Gimcheon, and 7 from Samcheok to isolate and screen for photosynthetic bacteria. Sterilized seeds of sesame (*Sesamum indicum* L. 'Super Taegang') were sown in autoclaved horticultural soil. Two week after germination, healthy seedlings of equal size were selected and transplanted into sterilized pots. The experiment comprised four treatments (A) Control normal plants: NF; (B) KS03 inoculated plants; (C) Flooding stress plants: F; (D) plants under flooding stress with KS03: F+ KS03 with three replicates of seven plants of each treatment.

### **[Results and Discussion]**

Screening results showed 9 isolates were positive for photosynthetic bacteria. Among 9 isolates, KS03 was selected based on better growth promotion effect and identified as *Rhodobacter johrii* based on 16s rRNA analysis. Isolate KS03 augment flooding stress and growth results showed 27.2% increase in shoot length, fresh weight (25.1%) and chlorophyll content (6.25%) were observed in sesame plants compared with flood stress control plants. Similarly, same trend was observed in chlorophyll fluorescence (Fv/Fm) and results showed KS03 inoculated plants have higher Fv/Fm than non-treated plants for flooding stress. In conclusion, isolate KS03 have a promising role in mediating flooding stress and reprogramming plant growth during flooding stress.

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