

BIOLOGICAL CONTROL OF *Sclerotinia sclerotiorum* AND *Leptosphaeria biglobosa* WITH *Bacillus velezensis* CanL-30

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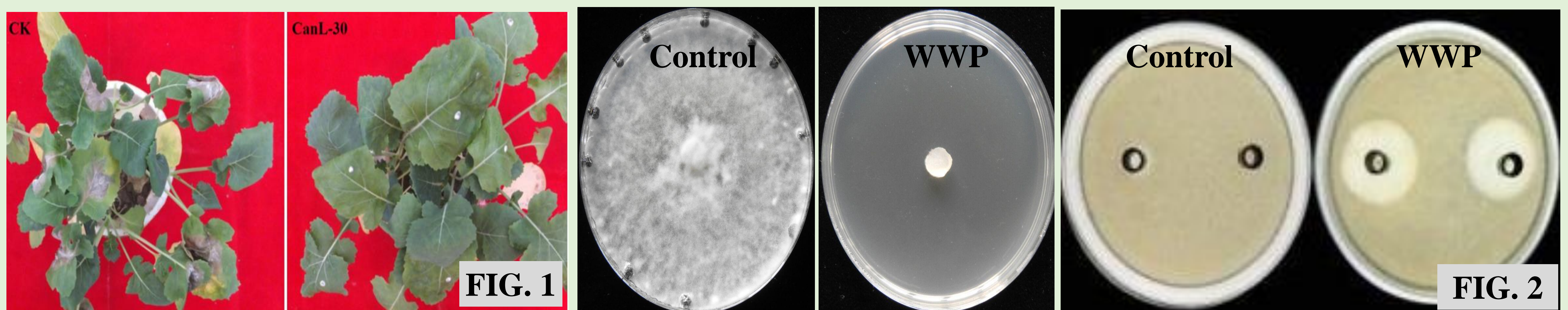
❖ **INTRODUCTION:** Strain CanL-30 of *Bacillus velezensis* was isolated from a healthy plant of *Brassica napus*. It is a strong antagonist of *S. sclerotiorum* (Ss) and *L. biglobosa* (Lb), and also showed a growth-promotion activity on *Arabidopsis thaliana* and *B. napus*. This study was done to determine the efficacy of CanL-30 in suppression of *Sclerotinia* stem rot (SSR) and *Phoma* stem canker (PSC) of *B. napus*.

❖ MATERIALS & METHODS

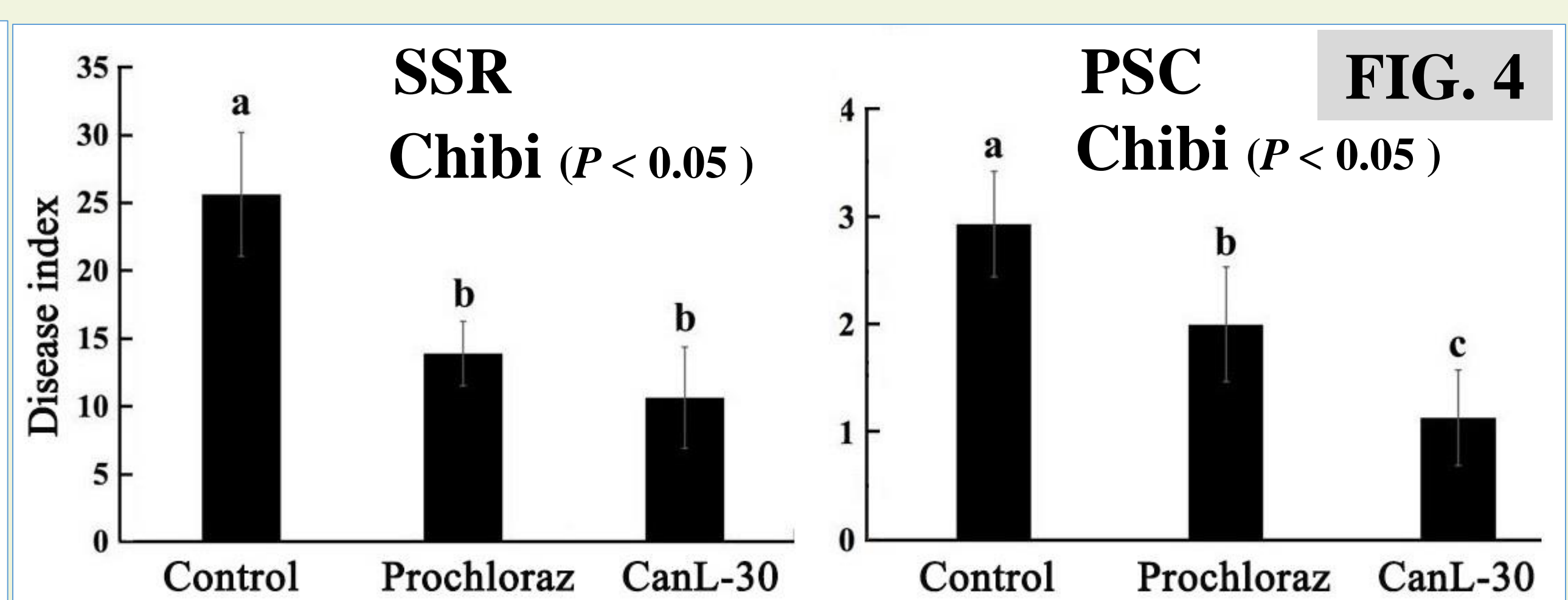
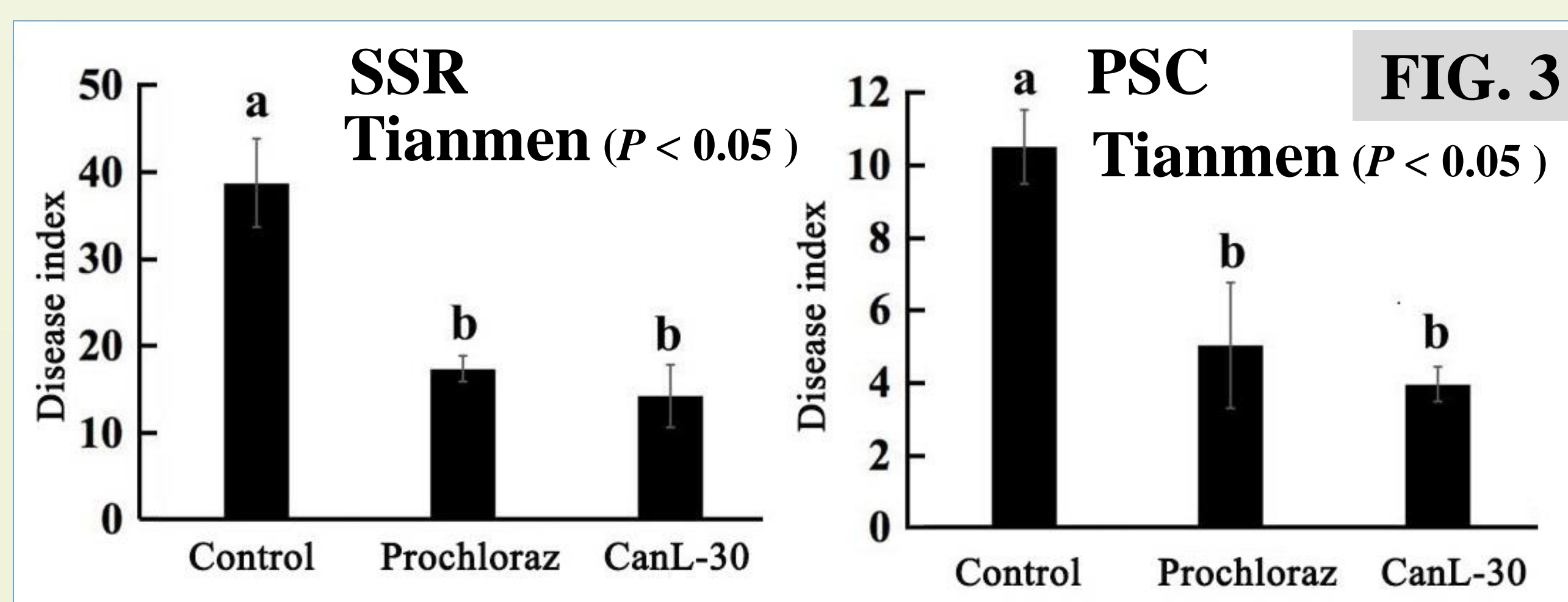
- ❑ PDB cultures of CanL-30: 28°C, 150 rpm, 72h, determined for suppression of Ss in potting experiment.
- ❑ Formulation of CanL-30: Incubated in 1- and 10-ton tanks (30°C, 36h), spray-dried, amended the bacterial powder with diatomite, formulated as water wettable powder (WWP) (1.5×10^{11} cfu/g).
- ❑ Bioassays: WWP suspended in water, centrifuged, the supernatant amended in PDA, PDA alone as control, inoculated with Ss, incubated at 20°C, measured colony diameter at 3 dpi and counted sclerotia at 30 dpi. The supernatant or water added to Oxford cups on Lb-amended PDA, incubated at 20°C for 72h, measured clear zones.
- ❑ Potting experiment: Sprayed PDB cultures of CanL-30 and water (control) on 45-day-old plants of *B. napus*, incubated with mycelia of Ss, maintained at 20°C for 72 h, measured leaf lesion diameter.
- ❑ Field plot experiment: Conducted in 2018-2019 and 2020-2021, in Tianmen and Chibi of China, 3 treatments (3 replicates each), completely random block design, (i) CanL-30 powder (80 g WWP/667 m²), (ii) prochloraz (562 µg a.i./mL), (iii) water (Control). Hand spray at bolting and flowering stages, surveyed SSR and PSC at harvest.

❖ RESULTS

- ❑ CanL-30 effectively suppressed Ss infection on leaves of oilseed rape (FIG. 1)



- ❑ CanL-30 WWP suppressed growth/sclerotial formation by Ss, and inhibited conidial germination by *Lb* (FIG.2)
- ❑ CanL-30 WWP effectively suppressed SSR and PSC (Data in 2018-2019 in FIG. 3 and FIG. 4). Data in 2020-2021 was not shown here. Compared to control, the CanL-30 WWP reduced SSR and PSC by 37% and 44%, respectively.



❖ **CONCLUSIONS:** *Bacillus velezensis* CanL-30 is a promising biocontrol agent of Ss and Lb.