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Oral sessions | Field Crop Production | O13: Current Issues on Tropical Crops

## [O13] Current Issues on Tropical Crops

\*Sponsored by the Japanese Society for Tropical Agriculture / The Society of Sago Palm Studies

Chair: Hiroshi Ehara (Nagoya University, Japan)

Chair: Hitoshi Naito (Kurashiki University of Science and The Arts, Japan)

Chair: Rosa Rolle (Food and Agriculture Organization of the United Nations, Italy)

Thu. Sep 9, 2021 5:00 PM - 7:00 PM Room 1 (Oral) (Field Crop Production)

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5:00 PM - 5:20 PM

### [O13-01] Expression and Insecticidal Characterization of Cry8Db Protein against *Lepidiotia signata* Fabricius

(Invited Speaker)

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*Bacillus thuringiensis* (Bt) is a ubiquitous Gram-positive bacterium that can produce different insecticidal proteins during the sporulation phase growth. The objective of this study was to examine the expression, including the effects of induction temperature, time and IPTG concentrations as well as investigate insecticidal activity of Cry8Db protein against *Lepidiotia signata* Fabricius. The results showed that the cry8Db gene was expressed in Rosetta-gamy *Escherichia coli* strain at optimal temperature 28°C, 100 µM IPTG and for 4 h induction. SDS-PAGE and Western blot were applied to confirm the normal expression and transcription of the cry8Db gene which produced the polypeptide with a molecular mass of 73 kDa. Three stages of *Lepidiotia signata* Fabricius larvae were examined in the bioassay to investigate their survival after 15 days. The protein exhibited high toxicity against *Lepidiotia signata* Fabricius in the three different larvae stages at the lowest mean lethal concentration of LC50 = 183.7 ng/mL, 270.8 ng/mL and 345.5 ng/mL, respectively. This is the first report demonstrating Cry8Db protein against *Lepidiotia signata* Fabricius larvae. The Cry8Db protein may become a potential environmentally friendly marker for the biological management of *Lepidiotia signata* Fabricius.