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BOOK OF ABSTRACTS

- Agronomy
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Cercosporin quantification in *Cercospora coffeicola* isolates by spectrophotometry and high-performance liquid chromatography: a comparative analysis

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RATIONALE

Coffee brown eye spot (BES) is an important disease, caused by the agent *Cercospora coffeicola*. BES affects all coffee growing stages, from seedlings in nurseries to adult plants, leading to losses up to 30%. Cercosporin is activated by light toxin produced by *Cercospora* and has been detected in some *Pseudocercospora* and *Colletotrichum* species. Cercosporin has been considered a possible component of aggressiveness in coffee plants. Sensitive and accessible methods for cercosporin detection and quantification are required for better understanding its role in plant pathogenesis. A comparative analysis of cercosporin quantification by spectrophotometry (SPEC) and high-performance liquid chromatography (HPLC) was performed in *Cercospora coffeicola* isolates

METHODS

Teen monoconidial isolates *C. coffeicola* were cultured in 9 cm diameter Petri dishes containing 9 mL PDA (potato dextrose agar) culture media and were maintained in BOD incubator (Bio-Oxygen Demand) under 12 h photoperiod at 25 °C for 12 days.

Four mycelial plugs (6 mm diameter) removed from each petri dish colony were immersed in 8 mL of 5N KOH and maintained in the dark for 4 hours. Cercosporin determination by SPEC was performed at 480 nm (Jenns et al. 1989, Yamazaki and Ogawa 1972) and by HPLC was performed based on Gunasinghe et al. (2016).

RESULTS

The cercosporin production varied among the *C. coffeicola* isolates, ranging from 0.01 to 34.52 µM. When comparing cercosporin quantification obtained by SPEC and HPLC for each isolate, although SPEC quantification was always higher than HPLC no significant differences were obtained (Tukey test, $p \leq 0.05$). Furthermore, the Spearman correlation showed a significant linear association between cercosporin quantification values obtained by SPEC and HPLC methods ($r=0.94$).

CONCLUSIONS & PERSPECTIVES

Both methods are equally valid for the cercosporin evaluation from *C. coffeicola* grown *in vitro*. The HPLC is an analytical procedure more sensitive, accurate and precise. On the other hand, SPEC is a fast and simple technique involving ordinary lab equipment; the choice of technique depending on lab facilities available.

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