DEVELOPMENT OF A DETECTION AND QUANTIFICATION METHOD OF *APHANOMYCES EUTEICHES* FRENCH ISOLATES IN SOIL.

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Aphanomyces euteiches, the cause of root rot of peas (*Pisum sativum*) is the most destructive soilborne disease of peas. It has started to cause serious troubles in France because of intensification of the pea production. An effective method of fighting and removal of the disease is not yet applicable in the case of this major plant pathogen. The only effective way consists of appreciating inoculum level in the soil in order to avoid strongly infested grounds. A quantitative real-time assay using TaqMan chemistry has been developed to quantify the level of *Aphanomyces euteiches* contamination in soil. The results presented are under framework whose objective aims at proposing a tool for diagnosis (I) The specificity of primer/probe set proposed by Vandemark[1, 2] has been validated on French isolates. (II) In order to be able to compare samples between them, we determinated the number of copies of target (76pb) on *Aphanomyces euteiches* genome and checked that this number was constant whatever isolates present. (III) Correlation has been established between the number of artificially inoculated oospores and root necrosis quantity after 14 days incubation. The molecular tool has been then transfered to naturally infested ground in order to appreciate the relevance of DNA extraction and molecular detection and quantification methods. The molecular tool could thus be an advantage in terms of decision-making for growers and the method could be then applied to many plant pathogens in order to prevent productions from significant damages.

1. Vandemark G.J., et al., *A PCR-based assay by sequence-characterized DNA markers for the identification and detection of aphanomyces euteiches.* Phytopathology, 2000. **90**(10): p. 1137-1144.
2. Vandemark G.J., Barker B.M., and Gritsenko M.A., *Quantifying aphanomyces euteiches in alfalfa with a fluorescent polymerase chain reaction assay.* The American phytopathological society, 2002. **92**(3): p. 265-272.