

Helicase-dependent isothermal amplification (HDA) developed for on-site detection of *Phytophthora* species.

Schwenkbier, L., Pollok, S., König, S., Urban, M., Werres, S., Cialla-May, D., & ... Popp, J. (2015). Towards on-site testing of *Phytophthora* species. *Analytical Methods*, 7(1), 211. doi:10.1039/c4ay02287d

Abstract

Rapid detection and accurate identification of plant pathogens in the field is an ongoing challenge. In this study, we report for the first time on the development of a helicase-dependent isothermal amplification (HDA) in combination with on-chip hybridization for the detection of selected *Phytophthora* species. The HDA approach allows efficient amplification of the yeast GTP-binding protein (*Ypt1*) target gene region at one constant temperature in a miniaturized heating device. The assay's specificity was determined by on-chip DNA hybridization and subsequent silver nanoparticle deposition. The silver deposits serve as stable endpoint signals that enable the visual as well as the electrical readout. Our promising results point to the direction of a near future on-site application of the combined techniques for a reliable detection of *Phytophthora* species.