

**Garavito, M.F.;** Garcia, L.; Lozano, G.L.; Bernal, A.J.; Zimmerman, B.H.; Restrepo, S. 2010. Expression and homology modeling of Dihydroorotate dehydrogenase from the phytopathogenic Oomycete *Phytophthora infestans*. *Phytopathology* 100:S39.

The oomycete *Phytophthora infestans* (Mont.) de Bary, the causal agent of the tomato and potato late blight, causes tremendous crop and economic losses worldwide. In Colombia this pathogen is currently a devastating risk for highlands dedicated to production of its potato host *Solanum tuberosum*. Current fungicide based control strategies are far from being adequate and new ones are urgently needed. As *P. infestans* seems to be more related to the apicomplexan parasites than to true fungi, we believe that inhibiting the metabolic processes used to control human parasites might work to control this plant pathogen. In this study we investigated the dihydroorotase dehydrogenase DHODase, one of the key enzymes of the *de novo* pyrimidine biosynthetic pathway as a potential drugable target to develop novel control strategies. *In silico*, our preliminary molecular docking assays by MOLEGRO using three-dimensional (3D) homology modeled structures suggest that 6 of 7 parasite DHODase inhibitory compounds exert as well an inhibitory activity against the *P. infestans* enzyme. A counter selection strategy using the *S. tuberosum* model revealed that two promising inhibitory compounds seem to be species-selective and exert low or no inhibition over the hosts DHODase. Using the *P. infestans* N-terminally truncated DHODase expressed and purified recombinant protein that complemented a DHODase-deficient bacterial host we expect the to validate our *in silico* hypotheses.