The use of the *PHPH* tool to assembly the gene sequences that are candidate to the biotic and abiotic stress in *Musa acuminata*

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To identify candidate genes related to the biotic and abiotic stress resistance in *Musa acuminata* a "virtual screening" was made using the 5,317 assembled sequences deposited in the DATA*Musa* database (http://genoma.embrapa.br/musa/pt/DATA_musa.html). Embrapa Genetic Resources and Biotechnology, Brasilia Catholic University (UCB) and the Agricultural Research for Developing Countries (CIRAD) developed this database, with financial support from CNPq. These three institutions are also part of the Global *Musa* Genomics consortium (GMGC).

From the selected sequences retrieved from the DATA*Musa* database, their correspondent electropherograms are submitted using the *PHPH* tool. This tool can be accessed using a web browser and was designed for the electropherogram quality analysis. It is available at http://adenina.biomol.unb.br/phph since August 2001.

Using *PHPH* it is possible to check the sequence quality automatially using the Phred program. The user parameterized the Phred quality and their sequences can be grouped by CAP3 program resulting in contigs and singlets. Using the generated consensus sequence a blast search was made against SwissProt database. So far, using the *PHPH* tool was identify 20 candidate genes that are resistant to biotic and abiotic stress in *Musa acuminata,* such as chitinase, pathogenesis-related protein, germin-like protein, among others.

By using the PHPH tool, it was possible to identify several genes related to biotic and abiotic stress, which are candidate genes with potential use in future studies to acquire resistance to these kind of stresses in *Musa*. The *PHPH* tool can be used for a small EST projects, with the usual pipeline from the electropherogram analysis to sequence assembly, all built-in in a single run. *PHPH* can also be accessed in the following mirror address:

http://bioinformatica.ucb.br/electro.html

http://condor.genoma.cenargen.embrapa.br/phph