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Mobilization of Adaptive Traits for Breeding

FULL PROGRAM & ABSTRACT BOOK

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AMPELOGRAPHIC AND GENETIC CHARACTERIZATION OF THE ISRAELI GRAPEVINE GERMPLASM COLLECTION

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INTRODUCTION –The Holy Land has a long history of winemaking, widely mentioned in ancient scripts. The high quality of the wines produced was known over the ancient world. The Muslim occupation of this region, starting in the 7th century started a long period of wine consumption prohibition, resulting in the eventual loss of local wine varieties. Thus, the renewing Israeli wine industry is based solely on international varieties.

AIMS AND SCOPES – In the last three years we are collecting and assessing for the first time a wide Israeli grapevine germplasm collection. Our efforts are in two directions: Collection of local cultivated varieties (~35 known table grapes varieties), and adding new ones by a wide survey done all over Israel. We collect both *sylvestris* and *Sativa* populations. Most importantly, we strive to identify varieties suited for quality wine production. The work is done all over Israel. A collection is being planted with 6 plants per unique accession.

MATERIALS AND METHODS –We use standard methods as requested by the EVDB and Cost action protocols. DNA of the accessions was extracted, PCR multiplexes, prepared and amplified, and SSR electropherograms were obtained using standard protocols. SSR data was analyzed using genemapper 4.1 software, The allele size analysis was done using the "Comparison" macro for excel. Population analysis was conducted using "Darwin 5" software.

RESULTS AND DISCUSSIONS –our collection now consists of about 270 accessions. Out of 148 accessions analyzed by 10 SSR loci, we found 61 unique profiles which were analyzed against European databases. Out of these, 10 were identical to Israeli and Palestinian accessions. To understand the relation in this group and to other collections, we conducted an initial population analysis. 50 of the unique accessions, having quality data for 22 SSR were analyzed. The analysis revealed two main groups: one of 35 accessions, mostly *V.vinifera ssp. sativa*, and a second of 15 accessions, all *V.vinifera ssp. sylvestris*. In addition, Primary and secondary descriptors, Phenophase description, and some eno-carpological traits were obtained for most of the accession, resulting in the identification of at least 3 white and 3 red *Sativa* varieties suited for quality wine production, as well as 2 *Sylvestris* accessions, producing highly phenolic but otherwise very interesting wines.

CONCLUSIONS AND POSSIBLE APPLICATIONS – The wilds in Israel contain wide populations of both *V.v. ssp. sativa* and *sylvestris*. We believe that by collecting and assessing these populations, an array of new-old varieties would be presented, starting a new era in the Israeli wine industry.