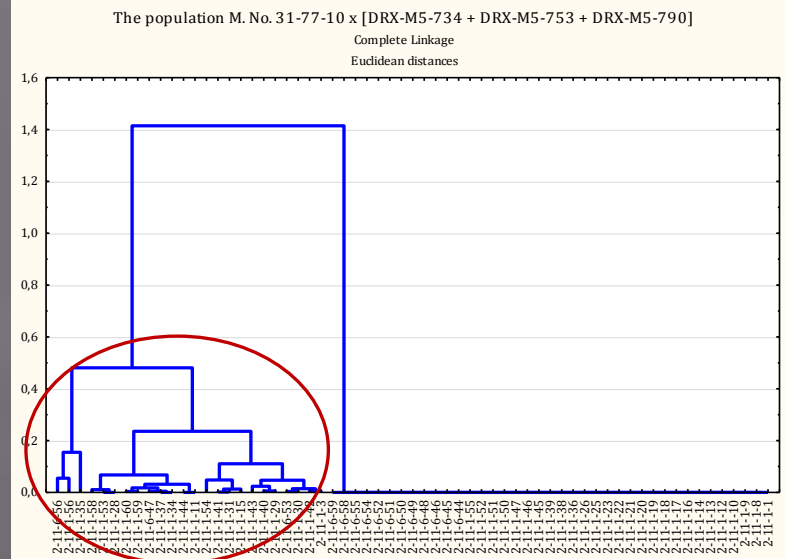
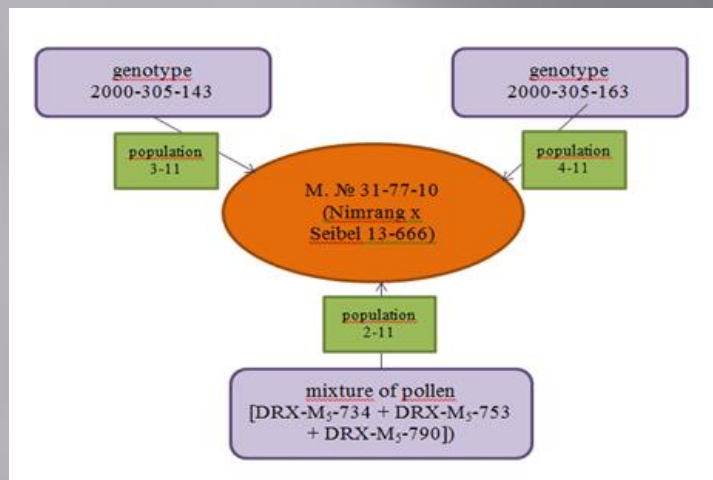


**EVALUATION OF STRESS RESISTANCE OF GRAPE
REMOTE HYBRIDS, CARRYING *VITIS*
ROTUNDIFOLIA MICHX. INTROGRESSIONS**

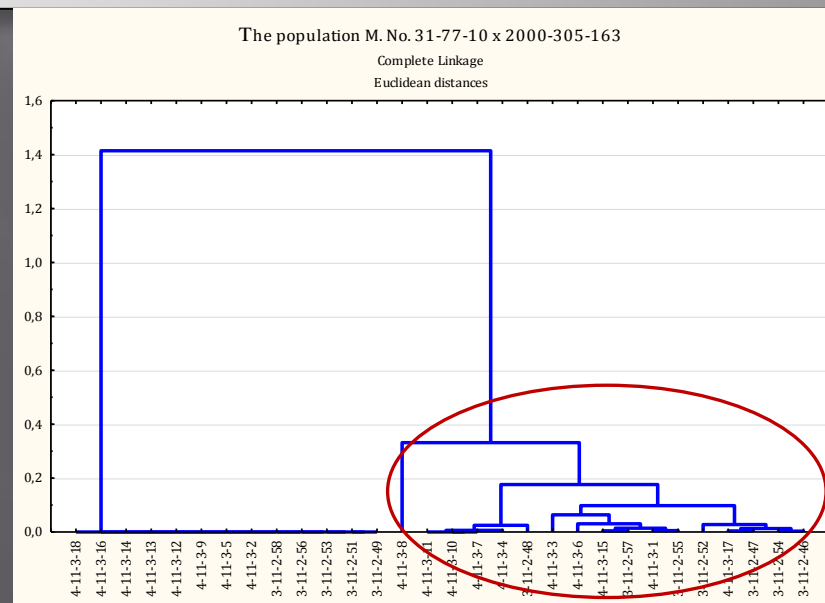
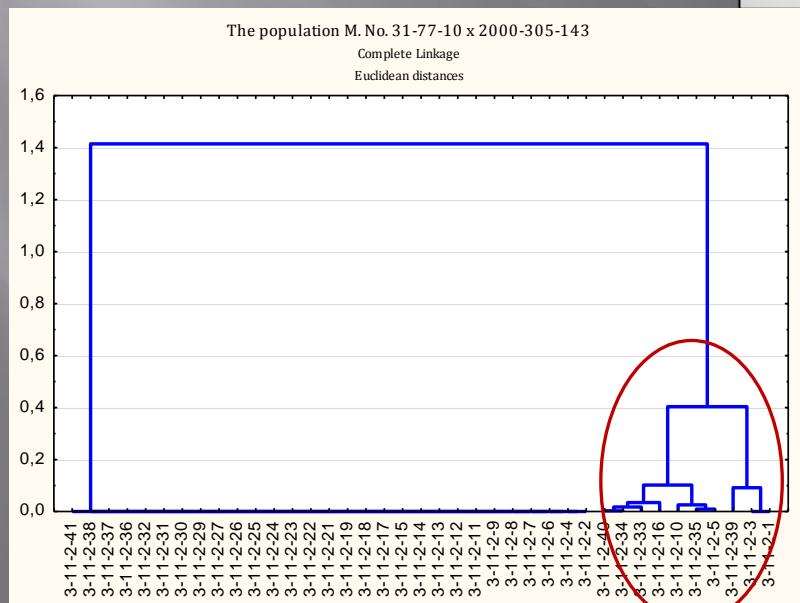
Volynkin V.A., Likhovskoi V.V., Vasylyk I.A.*,
Lushchay E.A., Gorislavets S.M., Volodin V.A.,
Risovannaya V.I., Potokina E.K.

All-Russian National Research Institute of Viticulture
and Winemaking “Magarach” RAS, Yalta, Russia

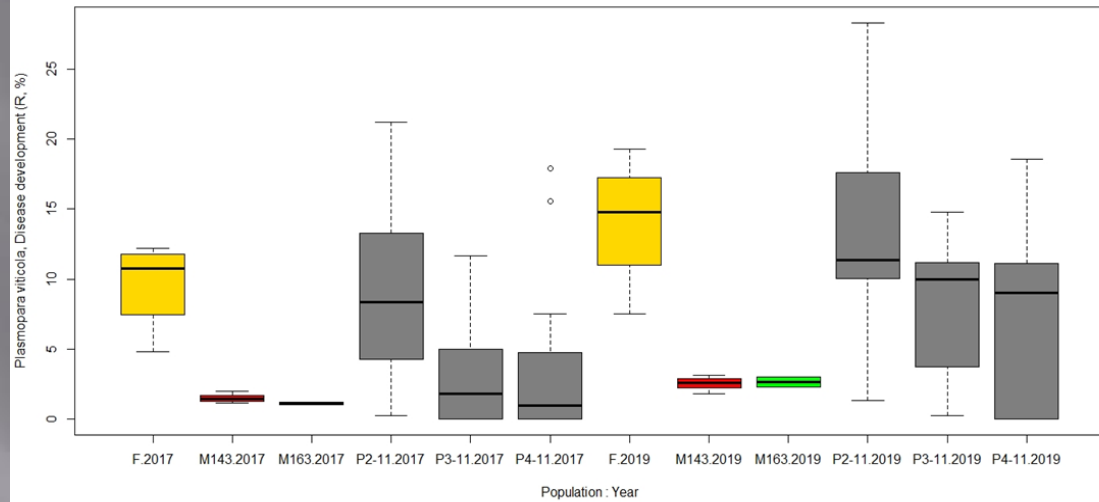
The **objects of research** were the recombinant lines of three populations from the crossing of the maternal form ♀M.No.31-77-10 with hybrids of the progeny of *Vitis rotundifolia*.



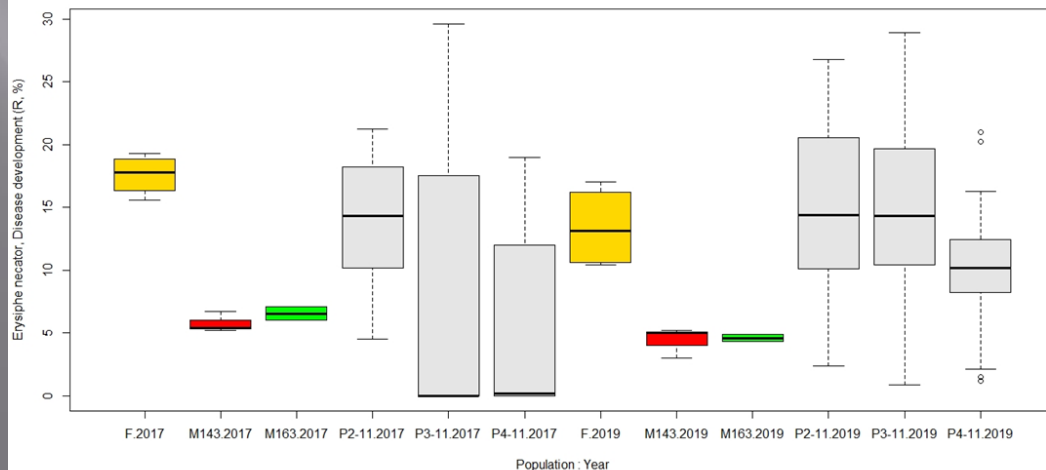
Results. It was found that in breeding for frost resistance, the use of the form ♀M.No. 31-77-10 has the character of a specific combinational ability to inherit resistance. As a result of laboratory screening in the population ♀M. No. 31-77-10 x [DRX-M5-734 + DRX-M5-753 + DRX-M5-790], more than 40% of recombinants are characterized by a high degree of resistance to frost (-24 C), transgressive recombinants (6%) with a very high degree of resistance (-27 C).



Resistance to downy mildew (assessed as disease development (R, %) per plant) of three hybrid populations (colored by dark gray) and their parental genotypes (Female M.№31-77-10 - by yellow, Male 2000-305-143 - by red, Male 2000-305-163 - by green) in field natural condition recorded in 2017 and 2019.



In this regard, there was a significant difference between the parental genotypes for resistance to both downy and powdery mildew: the percentage of leaves affected by the pathogens in the female parent M.№31-77-10 was more than three times higher than in the male parents 2000-305-143 and 2000-305-163 in both 2017 and 2019 . Progeny of 2-11 population showed the same level of resistance to both pathogens as their female parent, as confirmed by the unpaired two-sample Wilcoxon test ($p > 0.05$). Their half siblings, though, the populations 3-11 and 4-11 were closer to their male parents - genotypes 2000-305-143 and 2000-305-163 in their DM resistance. Percentage of leaves per plant with PM symptoms in the populations 3-11 and 4-11 varied significantly depending on the year.

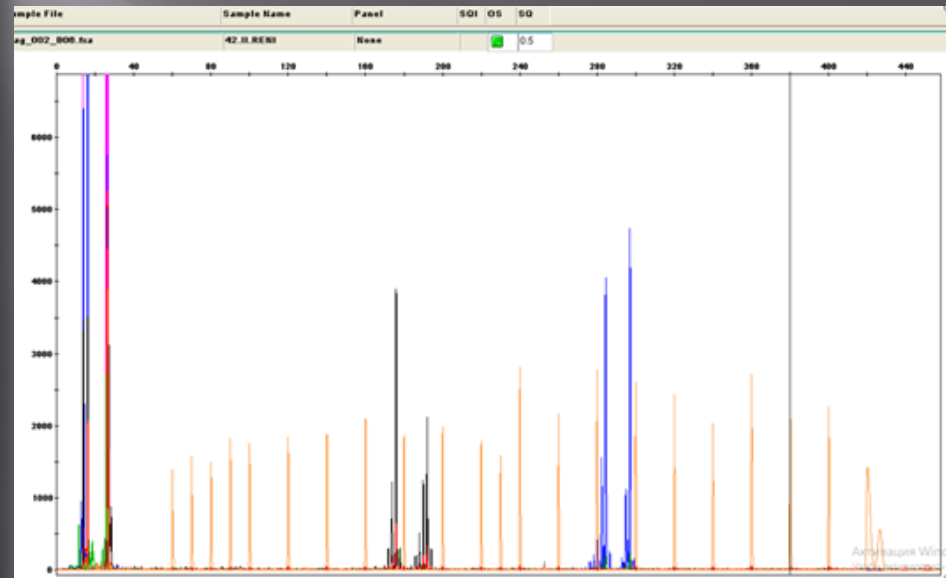


Resistance to powdery mildew (assessed as disease development score (R, %) per plant) of three hybrid populations (colored by light gray) and their parental genotypes (Female M.№31-77-10 - by yellow, Male 2000-305-143 - by red, Male 2000-305-163 - by green) in field natural condition recorded in 2017 and 2019.

The use of DNA markers made it possible to identify the gene for grape resistance to powdery mildew (the causative agent of *Erisiphe necator*) - *Run1* and to trace its inheritance

Gene	Locus	♀M.No31-77-10	2000-305-143	2000-305-163	Regent				
<i>Run1</i>	VMC4f3.1	176	178	<u>192</u>	<u>192</u>	<u>192</u>	<u>192</u>	<u>192</u>	<u>192</u>
	VMC8g9	174	178	174	174	174	174	174	178

Conclusion. In order to identify genotypes in hybrid offspring as potential carriers of resistance genes to fungal diseases, the molecular screening of parental forms and studied populations for the presence of alleles of the *Run1* resistance gene was carried out. Microsatellite markers VMC4f3.1 and VMC8g9 linked to the *Run1* oidium resistance locus on chromosome 12 were used (Pauquet et al., 2001, Barker et al., 2005) For the VMC4f3.1 marker, the 192 bp allele described as the resistance allele (Riaz et.al., 2008) was absent in the maternal form M.No. 31-77-10. In the paternal forms 2000-305-143 and 2000-305-163, this locus was homozygous for this allele 192 bp, associated with resistance (highlighted in red). Therefore, all recombinants obtained from crossing with these forms demonstrate high resistance.



ACKNOWLEDGMENT

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THANK YOU FOR YOUR ATTANTION!