SSR alleles were reducing the PH while 18 SSR alleles were enhancing it, among them allele $Xgwm357_{128}$ was significantly associated with PH and proved to be one of the most PH reducing alleles. In our study no MTAs were found between *Xgwm357* and PH. Overall, 12 SSR markers associated with PH have locations on chromosomes 2A, 3A, 5A, 1B, 3D, 4D, 6D and 7D. Confirmation of MTAs in Ukrainian breeding material under climatic conditions of southern Steppe opens new opportunities for using the pointed microsatellite markers for MAS.

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CULTURE IN VITRO AS A TEST SYSTEM FOR DETERMINING DEGREE THE PHYTO STABILITY OF ISOGENIC BY GENES VRN LINES OF SOFT WHEAT

It is known, that duration of ontogenesis, type of development (spring/winter) and speed of development in soft wheat *Triticum aestivum* L. determined by the system of *VRN* genes (Stelmach et al., 2000; Cockram et al., 2007). One of the factors limited the productivity of soft wheat is affection by vascular diseases induced by different types of micromycete of g. *Fusarium* (Grutcyk, 2013). *In vitro* is a modern model system in phytobiological research and in present days is widely used in cell selection for receiving stable to diseases plant varieties (Bavol et al., 2009; Kornya, 2011). Thus, in forming of resistance to plant pathogens, age, plant ontogenesis phase put through biotic stress are of the essence, it is interesting to learn predetermination by genes of wheat development rates in forming of biological mechanisms of resistance to biotic stress. The aim of our work is to research the influence of exometabolites phytopathogens of g. *Fusarium* on callus cultures isogenic wheat lines differ by development rates. The objects of research were near isogenic by genes *VRN* lines (NILs) of soft wheat *Triticum aestivum* L., Mironovskaya 808 sort and phytopathogenic micromycetes *Fusarium oxysporum* and *Fusarium moniliforme*. Primary callus cultures of isogenic lines were obtained using in the capacity of explants mature embryo. The cultivation was conducted in nutrient medium Murashige and Skoog (MS) containing growth stimulant – 2,4-D (2 mg/l) in thermostat with temperature 26°C in the darkness. Phytopathogens exometabolites influence g. *Fusarium* was researched by adding cultural filtrate of micromycetes into nutrient medium MS in the ratio 1:20. The cultivation of callus cultures

of isogenic lines was conducted during four weeks analyzing growing indicators (callus areas, growing index, length and number of cells of callus tissues). The results of our experiments showed that in conditions of *in vitro* cultures exometabolites phytopathogens *F. oxysporum* insignificantly and F. moniliforme considerably stimulate the growth of callus cultures of fast-developing isogenic lines *VRN Ala* and *VRN Dla*. Growing index of callus cultures *VRN Bla* and sort (all vrn genes are recessive) under the action of exometabolites *F. oxysporum* is reducing and under the action of *F. moniliforme*, on the contrary, is growing. Application of cultural filtrate into the medium of callus cultivation on their cytological characteristics has influences. Isolines differ by development rates differently react on exometabolites plant pathogens. In fast-developing, in conditions in vivo, isolines *VRN Ala* and *VRN Dla* in callus culture under the influence of phytopathogens the number of cells is reducing, but their length is growing. In slowly-developing isolines *Vrn Bla* and sort, on the contrary, the number of cells is growing, but its size is reducing. It is necessary to note, that exometabolites *F. oxysporum* are more phytotoxic, which is seen in changing of all the morpho-physiological callus cultures indicators in comparison to *F. monoliforme*. Among researched isogenic lines of wheat, the most resistant to pathogens by all indicators is isoline *VRN Ala*, characterized by fast rates of growing plant conditions of *in vivo,* and the less resistant – slowly-developing isoline *VRN Bla*. The received results allow us to suppose that *VRN* genes, determining the rates of development in conditions *in vivo* indirectly in participate in forming of resistance to exometabolites phytopathogens g. *Fusarium* in conditions *in vitro*.

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ТЕСТУВАННЯ ГАПЛОПРОДУКЦІЙНОЇ ЗДАТНОСТІ ГІБРИДІВ F_1 ПШЕНИЦІ М'ЯКОЇ СОРТІВ УКРАЇНСЬКОЇ ТА ЗАКОРДОННОЇ СЕЛЕКЦІЇ

У рамках селекційної програми з отримання високоврожайних екстрасильних сортів пшениці озимої м'якої проведено тестування гаплопродукційної здатності в культурі пиляків *in vitro* 21 гібридної популяції F_1 між сортами Селекційно-генетичного інституту та західноєвропейськими формами: Вікторія/KS92HW151-6;