Сорти салату посівного за різних способів вирощування забезпечили відповідно за роками досліджень не однакову масову частку сухої розчинної речовини в товарних головках, яка була в межах 4,56–5,65 % – за безрозсадного вирощування і 4,93–5,84 % – за розсадного. Відповідна закономірність спостерігалася і з сумарним вмістом цукрів. Сума їх була дещо вищою 1,3–1,9 для безрозсадного способу вирощування і 1,6–1,9 % – для розсадного. Вміст аскорбінової кислоти (вітамін С, мг/100 г) був найвищим у сорту 'Дивограй' незалежно від способу вирощування. Вміст нітратів у товарній продукції салату посівного не перевищував встановлених норм. Масова частка їх знаходилася в межах максимально допустимого рівня і склала 410–520 мг/кг сирої маси.

Найбільша частка нітратів у головках салату є у внутрішньому качані (480 мг/кг), тоді як середина головки зменшується (110 мг/кг). Високий вміст нітратів також мають покривні листки. Він залежить також від місця розміщення на листковій пластинці їхня масова частка коливалася від 410 до 460 мг/кг.

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PRODUCTION OF JOINTED GOATGRASS (*Aegilops cylindrica* Host*) × WHEAT (*Triticum aestivum* L.) HYBRIDS UNDER FIELD CONDITIONS IN AZERBAIJAN

Bread wheat (*Triticum aestivum* L., genome AABBDD, 2n=42) and jointed goatgrass (*Aegilops cylindrica* Host, genome CCDD, 2n=28) are genetically related species. Both species share the D-genome, allowing their hybrids easily to form under natural and controlled environments. The objective of our study was to produce hybrids between *Aegilops cylindrica* and *Triticum aestivum* for testing crossability in these hybrid combinations under field conditions of Azerbaijan.

The intergeneric controlled crosses were performed in 2016 at the Absheron Research Station of Genetic Resources Institute of ANAS (Azerbaijan). They involved the 3 genotypes from both *Aegilops cylindrica* (#40, #41, #43) and *Triticum aestivum* ("171ACS", "172ACS" and "624/1AO"). All the mentioned genotypes of goatgrass used as male plants in the crosses are originated and collected from the different regions of Azerbaijan (#40 is from Nakhchivan AR (the landlocked *Azerbaijani* exclave, located in the southwestern part of the Lesser Caucasus Mountains), #41 - from Lerik (southern *Azerbaija*n, occupies the location in the Talysh Mountains, a northwestern subrange of the Alborz (Elburz) mountain range), #43 – from Gobustan (eastern part of *Azerbaijan,* occupies the south-eastern spur of the

Great Caucasian Range)). The bread wheat genotypes used in our crosses as female parents obtained locally and stabilized as the derivatives of triticale-wheat hybridization {*Aegilotriticale* [(*T. durum* Desf. × *Ae. tauschii* Coss.) × *Secale cereale* L. ssp. *segetale* Zhuk.] × *T. aestivum* L. 'Chinese Spring'} (2n = 42, genome AABBDD) in previuos research works (Aliyeva, Aminov, 2013) and 624/1 AO v.lutescens. The emasculation and pollination of the employed genotypes in the *field* were *carried out* during the months of April-*May* 2016. No embryo rescue or hormone treatment was applied for the production of F_0 seeds. The seeds were collected from mature spike in the months of June-July and the crossability of the used genotypes in each hybrid combination was calculated as the percentage of F_0 seeds obtained relative to the number of florets pollinated for that cross. *All* of the *derived* hybrid seeds were germinated in Petri dishes and the obtained seedlings were transplanted into an experimental field for further investigations. Cytogenetic study of meiosis in F_1 was carried out according to the standard methods. Pollen mother cells (PMCs) for studies of meiotic chromosome behavior were prepared by means of the standard Carnoy fixative and acetocarmine squash method. Absheron Research Station is located in Absheron Peninsula, which is situated on the western coast of the Caspian Sea in the south-western extremity of the Great Caucasus mountain ridge. The climate here is the temperate semi-arid climate with warm and dry summers, cool and occasionally wet winters, and strong winds all year long. The average annual air temperature is +14,2°C, in January +3,4 °C, in July +25,2 °C. The peninsula is the most arid part of Azerbaijan (precipitation here is around or less than 200 mm a year). The majority of the light annual precipitation occurs in seasons other than summer, but none of these seasons are particularly wet. The natural vegetation of the Absheron Peninsula is dry steppe and semi-desert. Soils are formed of sandy-clayey and limestone rocks and their salinity type is chloride.

Attempts to produce hybrids from the intercrossing of bread wheat line "171ACS" with the 3 genotypes of *Ae. cylindrica* (#40, #41, #43) have given results, ranging from complete sterility for the combination of "171ACS" × "#41" to the highest degree of fertility among the studied crosses for the combination of "171ACS" × "#40", where the seed setting was approximately 7,14 %. However, only 2 seeds from 4 were in the latter combination germinated and produced seedlings, from which only one hybrid plant finished its vegetation period. This pentaploid (2n=5x=35) F_1 plant was, unfortunately, sterile and during the meiosis process, the amount of ring and rod bivalents were about 5,22 and 1,80 for each PMCs. Also, 0,24 trivalent configuration was observed in this F_1 hybrid plant. A large quantity of univalents (20,22) and low chiazma frequency (12,81) are resulted from low chromosome pairing. The total amount of bivalents were 7, which was expected as a result of shairing the common D genome by both parental plants. The seed setting rate of the third combination "171ACS" × "#43" was 2,86 %, we obtained 2 seeds with the high germination ability. The study of meiosis in F_1 hybrid

plants showed the having of 2-3 rod bivalents and 29-31 univalents for the most PMCs, that could be considered as the main reason for the sterility of these plants. Hence, our results agree with the commonly observed male sterility in F_1 hybrid plants derived from crosses of common wheat with the jointed goatgrass. Possible reason for the sterility in hybrids could be due to cytological instability and/or genom dosage. For the preventing of sterility in F_1 plants we attempted to use backrosses them with the different bread wheat lines ("172ACS" and "624/1AO"), including the female genotype "171ACS". Single seed obtained from backross combination (1,56 %) with line "624/1AO". However, this seed could not complete its vegetation period.

In conclusion, despite of using diverse accession of *Ae.cylindrica* and various bread wheat lines in hybridization process, we did not obtain any offspring F_1 plant, under field conditions in Azerbaijan.