

Comparison of diploid and tetraploid Chia genotypes in terms of agronomic characteristics, yield and quality

Status

Completed

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Description

Chia (*Salvia hispanica* L.) is an annual herbaceous plant from the Lamiaceae family. Its region of origin lies between Mexico and Guatemala. Chia was used as food and medicine by the Aztecs and Maya as early as 3500 years before Christ. After the invasion of Spanish conquerors in South America 500 years ago, Chia disappeared from the diet of the local population. Due to the worldwide increasing health awareness and the growing demand for food with additional health-promoting properties, Chia seeds attracted more and more attention since the early 1990s due to their high concentration of extractable fatty acids, their high content of unsaturated fatty acids (ω -3 and ω -6), their content of soluble and insoluble fibers (mucilages), vitamins, minerals and antioxidants. A randomized field trial carried out at the experimental station Ihinger Hof showed that the genotypes G8 and 17GHWC could be recommended for cultivation in southwest Germany, as they achieve high yields and obtain good quality traits. By choosing an earlier harvest date, the partial loss of seeds can be prevented, which could lead to even higher yields. At the moment the genotypes 16GH and 16Qsand are not suitable for cultivation, but these genotypes have shown high single plant yields and could show a high yield potential after breeding potentials are fully exploited. The results of this work show the ability of the tested genotypes to induce flower formation and thus to produce a satisfactory yield and good quality parameters under the given climatic conditions in southwestern Germany. Different requirements for soil temperature and harvesting time of the individual genotypes became apparent, so that they can be adapted and improved in the future. Since the environmental conditions have a considerable influence on the growth and development of the plants as well as on their yield and quality traits, it is necessary to collect further data to prove yield stability in order to estimate the influence of the year of cultivation. In general, Chia can be seen as a future alternative for the farmers in this region, based on the data obtained by this study.

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