The invention describes a method for increasing the content of non-psychotropic phytocannabinoid cannabidiol acid (CBDA) and its derivative cannabidiol (CBD) in the inflorescences of fibrous hemp (Cannabis sativa) by applying seed treatment under vacuum before sowing. The seeds are placed in a single layer in a sterile 10 cm diameter Petri dish placed in an airtight 0.05 m3 stainless steel chamber. A vacuum of 100-200 Pa is created in the chamber, the working gas is the residual air. The seeds in the chamber are vacuum treated for 3-7 minutes. The treated seeds are stored at 20-25 ° C in the dark for 4 days, then sown and the plants are grown under normal conditions. Using the described technology - short-term vacuum treatment of fibrous hemp seeds - it is possible to significantly increase the amount of non-psychotropic cannabinoids in the inflorescences of female plants up to 20-25%.0