

C-Banding Karyotype and Molecular Characterization on Cumin, Caraway and Coriander

Ibrahim M.A.^{1*}, Bekhit M², Neveen Hassan¹, Refaat M² and El-Akkad T² National Gene Bank, Agriculture Research Center, Giza, Egypt² Faculty of Agriculture, Banha University, Mushtohor, Banha, Egypt

Abstract

Our goal for this study to characterize three species germplasm of family Apiaceae, namely (cumin, caraway and coriander), to make a chromosome characterization and molecular fingerprint for the mentioned species. Results performed on Karyomorphological showed that; *Cuminum cyminum* L. (cumin: $2n=14$), *Carum carvi* (caraway: $2n=20$) and *Coriandrum sativum* (coriander: $2n=22$). The total Chromatin Relative Length percentage (RL%) showed cumin $\pm 10.69 \mu\text{m} \pm 19.70 \mu\text{m}$, caraway $\pm 7.30 \mu\text{m} \pm 13.40 \mu\text{m}$ and coriander $\pm 5.58 \mu\text{m} \pm 12.07 \mu\text{m}$. Satellites in all the cases were associated to short arms. The molecular characterization for the three species (caraway, cumin, and coriander) was conducted using 5 AFLP combinations and 15 anchored-ISSR primers. The total amplified bands were 330 (162 ISSR+168 AFLP), with an average 83.75% (89.5 ISSR+78 AFLP) per primer. The combined dendrogram based on both AFLP and SSR markers for the three accessions was divided into 2 main clusters; the first cluster has 2 accessions (caraway and cumin) with 60% similarity, while coriander falls in a distinct cluster.

*Corresponding author: Muhammad A Ibrahim, Assistant Researcher, National Gene Bank Agricultural Research Center, Giza, Egypt, Tel: +20235693359; E-mail: maibrahim30@icloud.com Received May 09, 2019; Accepted June 05, 2019; Published June 12, 2019

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