

Karyotypes of *Origanum* (Lamiaceae) Section *Anatolicon* from TurkeyEsra MARTİN¹, Tuncay DİRMENÇİ², Türker YAZICI²¹Biotechnology Department, Necmettin Erbakan University, Konya, Turkey²Biology Education Department, Balıkesir University, Balıkesir, Turkey

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Aim of the study: Cytological research needs to be used in conjunction with other sources of data to achieve a better understanding of the cytogenetical relationships of *Origanum* L. taxa, leading to their plant classification. In this regard, karyotypes were determined in two taxa of *Origanum* growing naturally in Turkey and karyological attributes of selected taxa were evaluated for the first time.

Material and Methods: All samples were collected from wild populations from Turkey. Collected specimens were deposited in Balıkesir University. All karyological observations were carried out on root tips. Root-tip meristems were provided from seed by germinating them on wet filter paper in Petri dishes at room temperature. Firstly root tips pretreated for 16 h in α -monobromonaphthalene at 4°C, fixed in 3:1 absolute alcohol/glacial acetic acid, then the root tips were hydrolyzed with 1 N HCl for 12 min at room temperature and stained with 2% aceto-orcin for 3 h at room temperature. Stained root tips were squashed in a drop of 45% acetic acid and permanent slides were made by mounting in Depex. For karyotype analysis the photographs enlarged 10 \times 100 were taken using a microscope with a camera attachment. The karyotypes were measured by Software Image Analyses (Bs200ProP) loaded on a personal computer. Ideograms of these taxa were arranged in decreasing length.

Results: Karyotypes of the chromosomes in the *Origanum* genus which belongs to *Anatolicon* Benth. section were studied using the Image Analysis System. *Origanum hypericifolium* P.H.Davis and *O. sipyleum* L. were used in this study. *O. hypericifolium* was studied from the sample named as 4357. The chromosome number of the sample naturally grow in province of Denizli was detected as $2n=30$. Average chromosome length of the 4357 plant sample was 0.46 μ m while it haploid chromosome length was measured as 13.80 μ m. Also, the relative length was changed between 2.46 and 11.88. In addition, four localities of *O. sipyleum* naturally grow in province of Denizli and Aydın were cytogenetical studied. While the 4308 sample has $2n=28$ chromosome number, this value was $2n=30$ for the samples named with 4517, 4352 ve 4534 numbers. When compared all data between each other; average chromosome lengths for the 4308 and 4352 samples were found as 0.74 μ m and 0.47 μ m, respectively while the same value was measured as 0.44 μ m for the 4534 sample. Furthermore, the haploid chromosome lengths were 20.98 μ m, 14.19 μ m and 13.32 μ m for the 4308, 4352 and 4534 samples, respectively. The relative lengths of the 4308 sample changed between 3.76 and 9.53 while these values ranged between 3.73-9.58 and between 2.92-11.41 for the samples named with 4352 and 4534 numbers, respectively. In this study, all karyotype analyses of the samples was carried out by the use of Image Analysis System.

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Keywords: Image Analysis System, Karyotype, *Origanum*