Abstract

The aim of this study was to analyse the karyotype by using root tips of three species of the Aloe genus namely Aloe sabaea; A. shadensis; A.castellorum, and to differentiate between them from the sight of chromosomes taxonomy, in addition the study aimed to determine the DNA concentration for the three species.

Chromosome number of these three species were (2n = 14) it consisted of four pairs of large subtelocentric chromosomes and three pairs of relatively small submetacentric chromosomes. The presence of a secondary constrictions were clearly visible positioned in the distal end of the long arm of the second chromosome pair in A.shadensis, and on the long arm of the first chromosome pair in A.castellorum, while no satellite observed in A.sabaea.

Chromosomes length, arm ratio, the relative length and the total chromatine length were calculated. The length of the chromosome complement already indicated that the species of Aloe s possess large genome.

The DNA concentrations were determined through spectrophotometer measurements, they were (3.46, 5.58, 4.41) μg/ml in A.sabaea, A.shadensis, A.castellorum, respectively. Since there were variations in the DNA concentration, then the three species were different. It proves that the source of variation among these three species is in the variation of the DNA amount although their karyotypes were closely similar in many aspects. This maybe due to the difference of gene expressions among the studied species.