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Chromosomal aberrations and sister chromatid exchanges induced during seed ageing in *Crepis Capillaris*

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The incidence of chromosomal aberrations and of sister chromatid exchanges (SCEs) arising during the ageing of *Crepis capillaris* seeds were investigated. Seeds were stored for 3-9 years. Chromosomal aberrations were analysed on metaphase chromosomes in first mitosis. Colchicine block was used for the differentiation of individual mitotic cycles. The fluorescence plus Giemsa technique was used for detection of SCEs after unifilar incorporation of BrdU into DNA. The frequency of chromosomal aberrations induced during the seed ageing gradually increased with the increase in the time of ageing, reaching its maximal value after 9 years of ageing. Both chromatid and chromosome type aberrations were observed in first mitosis. At all times of ageing the frequency of chromosome type aberrations strongly surpassed that of the chromatid type. At the same time the frequency of SCEs did not increase even after the longest seed ageing. To clarify what are the possible factors inducing damage leading to formation of chromosomal aberrations during the seed ageing, dry fresh and aged seeds were irradiated with gamma-rays (20-50 Gy). The data showed that the frequency of chromosomal aberrations in irradiated aged seed was higher than the sum of aberrations observed both in unirradiated aged seeds and irradiated fresh seeds. This synergetic effect was more clearly expressed in seeds stored for a longer time. These data were interpreted as an evidence for decreased activity of repair systems as a result of which the induced chromosomal damages were unable to be repaired and hence chromosomal aberrations were formed.