

MESBAH, MAHMOUD¹, OLGA E. SCHOLTEN^{1*}, THEO S.M. DE BOCK¹, JOHANNES M. SANDBRINK¹, RENÉ M. KLEIN-LANKHORST¹, J. HANS DE JONG² AND WOUTER LANGE¹,
¹DLO-Centre for Plant Breeding and Reproduction Research (CPRO-DLO), P. O. Box 16, NL-6700 AA Wageningen, The Netherlands and ²Wageningen Agricultural University, Department of Genetics, Dreijenlaan 2, NL-6703 HA Wageningen, The Netherlands. Studies on monosomic additions in *Beta vulgaris*, carrying an extra chromosome of species of the section *Procumbentes*.

Alien monosomic additions ($2n=19$) have been made. This are plants of cultivated beet (*Beta vulgaris* $2n=18$), carrying different individual chromosomes of *B. procumbens* ($2n=18$) or *B. patellaris* ($2n=36$). The alien chromosomes were identified with the aid of DNA fingerprinting, using repetitive DNA probes. In this way the available set of nine different monosomic additions of *B. procumbens* could be improved. Monosomic additions of *B. patellaris* could be grouped in nine different groups, many of them with two sub-groups. Two of the DNA probes were used to study contracted alien chromosomes, as well as extended chromosome fibres, using FISH (Fluorescence In Situ Hybridisation). In greenhouse experiments the monosomic additions were subjected to infections with the beet cyst nematode (*Heterodera schachtii*), with *Cercospora beticola*, and with viruliferous *Polymyxa betae*, the vector of the beet necrotic yellow vein virus (BNYVV). In most cases it was possible to identify the chromosomes carrying the gene(s).