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Analyses of Specific-Chromosome DNA Contents in Maize (Zea mays L.) Inbred Lines

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Analyses of flow karyotypes using different maize (Zea mays L.) inbred lines have been performed. The accumulation and isolation of high quality and quantity metaphase chromosomes from root tips can be achieved from many kinds of maize lines. The chromosome suspensions were prepared by a simple slicing method from synchronized maize root tips and analyzed with a flow cytometry. The variations of experimental flow karyotypes were detected among inbred lines in terms of the positions and/or the numbers of chromosome peaks. The 2C DNA amount among 8 inbred lines ranged from 5.09 to 5.52 pg. The variability of DNA content in maize chromosome 1 was 9.1 % ranging from 0.685 to 0.747 pg. The selection of appropriate maize lines is critical for sorting specific single chromosome types. At least five different chromosome types can be discriminated and sorted from five maize lines.