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Poster Abstract – A.03

IMAGE ANALYSIS MEASURING TOOL TO ASSESS THE MORPHOLOGY AND STRUCTURE OF PLANT CHROMOSOMES

VENORA G., GRILLO O.

Stazione Sperimentale di Granicoltura per la Sicilia, Via Bouganvillea 20, 95041 Caltagirone (Italy)

chromosome, measuring tool, image analysis

A quick and objective imaging method was developed to measure chromosomes after their arrangement in karyograms.

The tool allows the measurement of the morphology of each chromosome independently of their number, size and shape. The centromeric position is drawn interactively by the user together with the satellite position, moreover each chromatid is taken into account in the measurements. Direct measurements of each arm in each chromatid and satellite if any, are stored in a specific data base and ready to use in another application (e.g. Excel electronic table).

If chromosomes have been treated specifically to show patterns (Banding, FISH, GISH, Immunological reaction) it is possible to map on the chromosome each band/spot/paint, and quantify also any of them, i.e. morphological and densitometrical measurements can be easily obtained on specific chromosome paint.

The tool was developed with Zeiss KS-400 V3.0 (Carl Zeiss Vision GmbH, Hallbergmoos, Germany, 2001) image analysis software. It is a versatile image processing program designed to support demanding professional applications, moreover it can be customized for specific applications by editing appropriate image analysis algorithms in ‘‘*Macros’’*, able to automate the analysis.

The tool is freely accessible and open to any collaborative work on plant and animal chromosomes, send us the karyogram photos and we will send back the results.

Karyotyping in plant by an image analysis system 1991. Venora G., Conicella C., Errico A., Saccardo F. J. Genetics & Breeding - 45 : 233-240