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Characterization of fragile sites in *Lolium perenne* L.

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Lolium perenne is considered a high quality forage widely used in temperate regions to meet the shortage of forage during the winter. In this species of *Lolium* some peculiarities related to cytogenetic aspects have already been described, as the variability in number and position of 45S rDNA sites and the expression of fragile sites, which require further studies to support the understanding of their causes and consequences. In this way, this study aimed to evaluate the relationship between the expression of fragile sites and functional repetitive sequences (rDNA and telomeric) in chromosomes of diploid and polyploid cultivars of *L. perenne*. The techniques of FISH and Ag-NOR and fluorescence banding were used to assess the distribution of sites of 45S rDNA, 5S, telomeric sequences and the transcriptional activity of the 45S ribosomal genes and the distribution of AT- and/or GC rich sequences respectively. There was variability in the number and location of 45S rDNA sites, which was not observed for 5S rDNA sites. One of the genotypes showed two 45S rDNA sites on the same chromosome, located in different chromosome arms. Breaks and gaps were found in 45S rDNA sites in most metaphases evaluated for both cultivars. Telomeric sequences were not detected at the end of the chromosomal fragments corresponding to the location of breaks at 45S sites. Apparently the transcriptional activity was modified in fragile sites. Variation in the number and size of nucleoli, nucleolar fusions and dissociations were observed. All CMA^+ bands were colocalized with the 45S sites.

Keywords: 45S rDNA, CMA+, transcriptional activity, nucleoli, telomere

10th Plant Science Student Conference

2nd June – 5th June 2014

Program & Abstracts

Conference Programme

Monday, June 2nd, 2014

Time	Programme
01:30 pm	Registration (Foyer Lecture Hall)
03:45 pm	Welcome and Opening Remarks- Prof. Dr. Andreas Graner (Acting Director, IPK)
04:00 pm	Prof. Dr. William Martin *Early energy: Hydrothermal vents and the origin of life*
05:00 pm	Session I (Talks 1-3)
06:30 pm	Welcome Party & BBQ

Tuesday, June 3rd, 2014

08:30 am	Dr. Damian Gruszka *Mutations in barley genes involved in brassinosteroid metabolism influence culm length and sturdiness*
09:30 am	Session II (Talks 4-5)
10:10 am	Coffee Break / Group Photo
11:00 am	Session III (Talks 6-9)
12:20 pm	Lunch Break
01:00 pm	Poster Session I (Odd numbers)
02:00 pm	Prof. Dr. Dr. Peter Schröder *Phytoremediation - Prospects and Limitations*
03:00 am	Session IV (Talks 10-12)
04:00 pm	Coffee Break & Debate Session
05:00 pm	Session V Chair (Talks 13-16)
06:20 pm	Soup Evening/Biergarten

Wednesday June 4th, 2014

09:00 am	Hiking Trip to Wernigerode (Meeting point: Main gate of the IPK, Gatersleben)
06:00 pm	Pizza Evening with Rock et al (IPK club)

Thursday June 5th, 2014

08:30 am	Session VI (Talks 17-19)
09:30 am	Coffee Break
10:00 am	Prof. Dr. Röbbe Wünschiers *From light to fuel: Omics research in the field of biomass fermentation and photosynthesis*
11:00 am	Session VII (Talks 20-21)
11:40 am	Poster Session II (Even numbers)
12:40 pm	Lunch Break
01:30 pm	Session VIII (Talks 22-26)
03:10 pm	Coffee Break
03:40 pm	Session IX (Talks 27-29)
05:30 pm	Awards & Good Bye Party

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