Short talk: Janka Puterová

NGSchool 2016
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Dolný Smokovec, Slovakia

Brno University of Technology

Faculty of Information Technology

- Master degree - bioinformatics and biocomputing
- PHD studies - 1st year
- Transposable elements

Institute of Biophysics of CAS, Brno

Department of Plant Developmental Genetics

- Evolution of sex chromosomes in dioecious plants
- Mobile genetic elements - transposons
- Genome structure

Hippophae rhamnoides (seabuckthorn)

- Dioecious shrub
- Heteromorphic sex chromosomes
- No information about genome composition
- Genome size ~2.55Gbp/1C (pretty small for plant)

Goals

- Characterize repetitive elements in *H. rhamnoides* genome
- Reconstruction of main transposable elements and satellite DNA
- Solve mystery about Y chromosome in *H.rhamnoides*
  - Two studies with controversial results
    - Shchapov (1979) - small Y, large X chromosome
    - Truta et al. 2011 - large Y, small X chromosome

Repetitive elements

Transposable elements - interspersed repeats

- Retrotransposons - “*copy and paste*” - increase number of copies
- DNA transposons - “*cut and paste*” - constant number of copies

Satellites - tandemly repeated sequences

- Microsatellites
- Minisatellites
- Satellites

Illumina paired-end reads from male and female

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Just bioinformatics stuff

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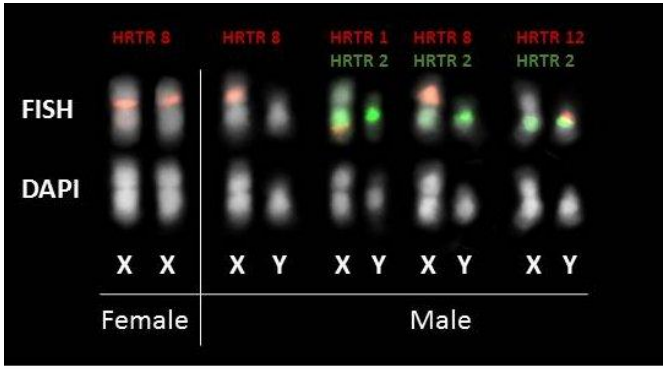
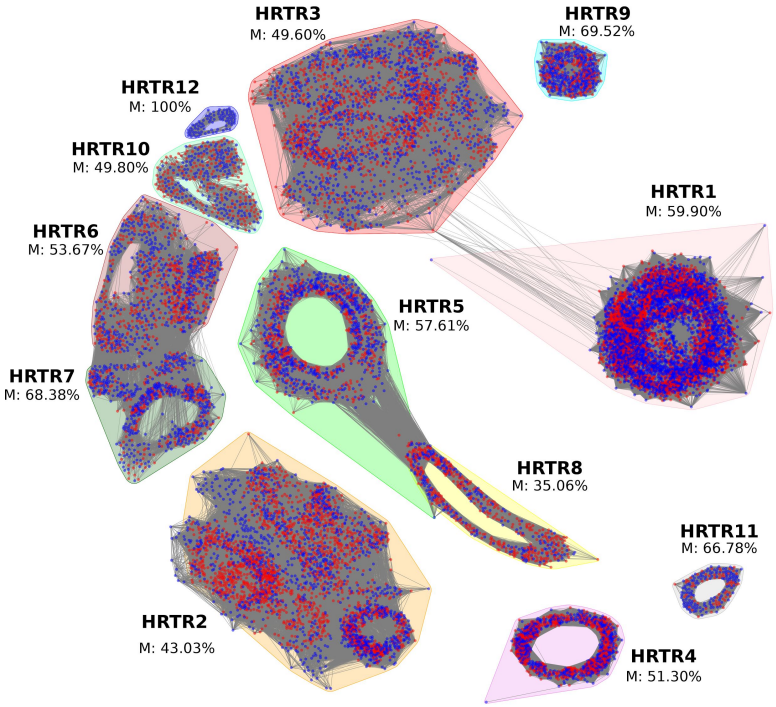
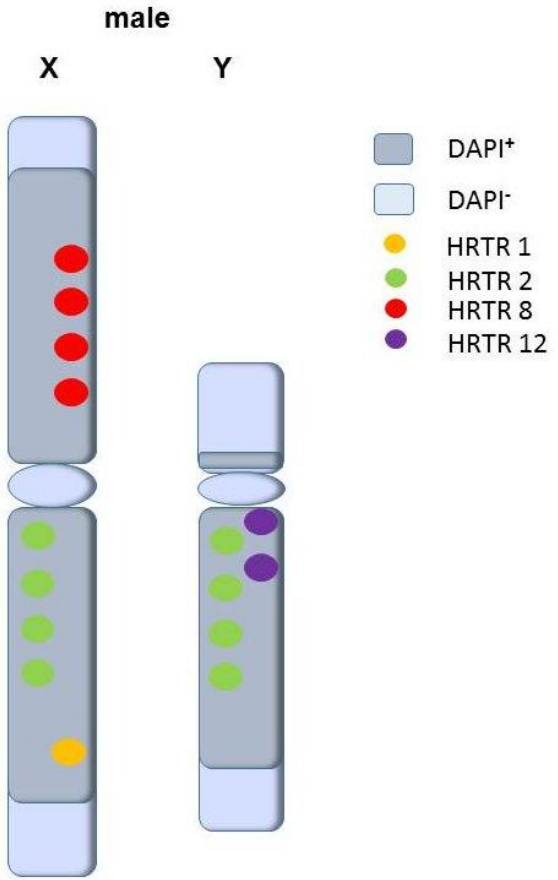
Results

25 % of genome
12 main satellite families
Sex-specific and sex- accumulated satellites

- HRTR1 and HRTR12 - Y-specific
- HRTR8 - X-accumulated
- HRTR2 - Y-accumulated

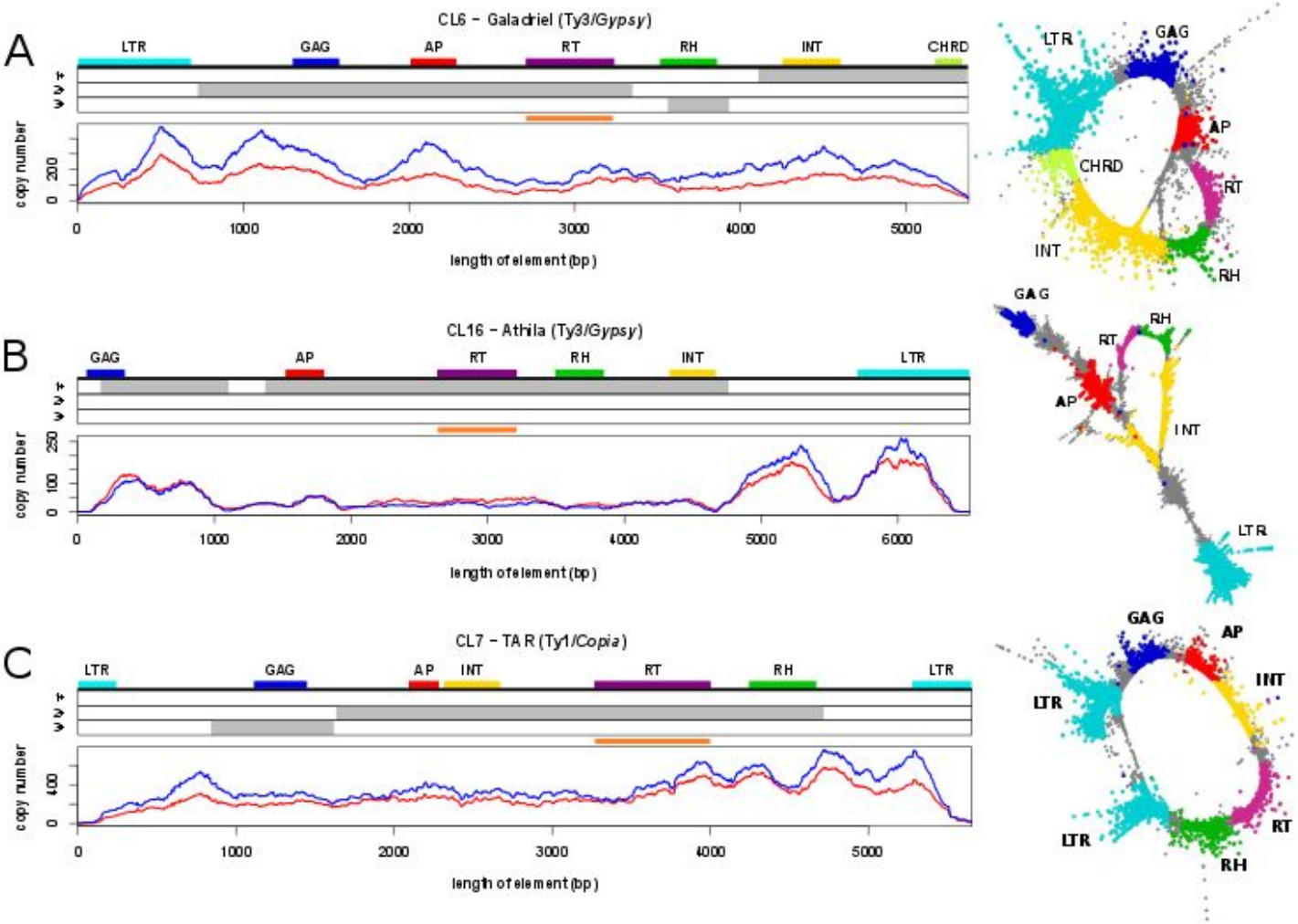






Puterova *et.* al, 2016 (submitted)

No interesting results for transposable elements :(



Puterova *et.* al, 2016 (submitted)

Thank you for your attention :)