

# 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

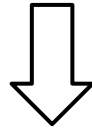


## Satellites - tandemly repeated sequences

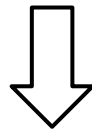
- Microsatellites
- Minisatellites
- Satellites



Illumina paired-end reads from male and female



Just bioinformatics stuff



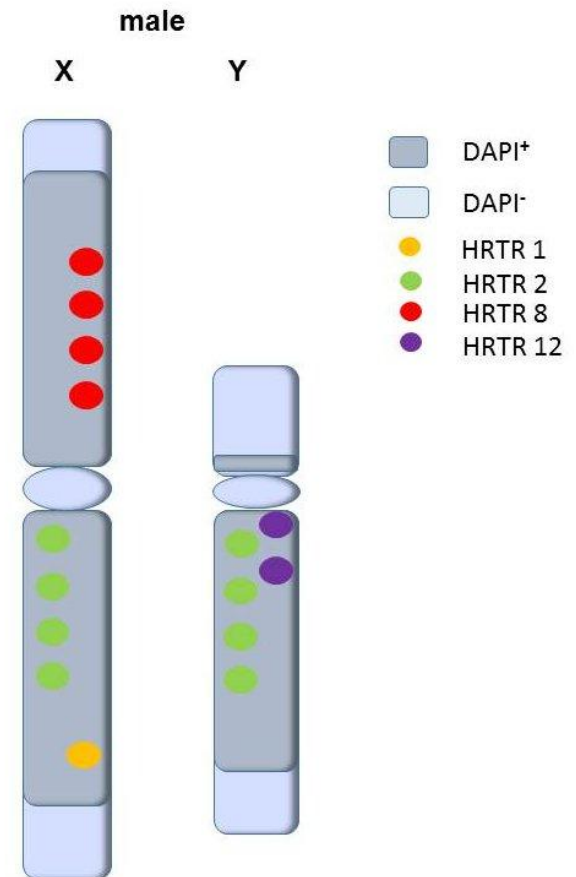
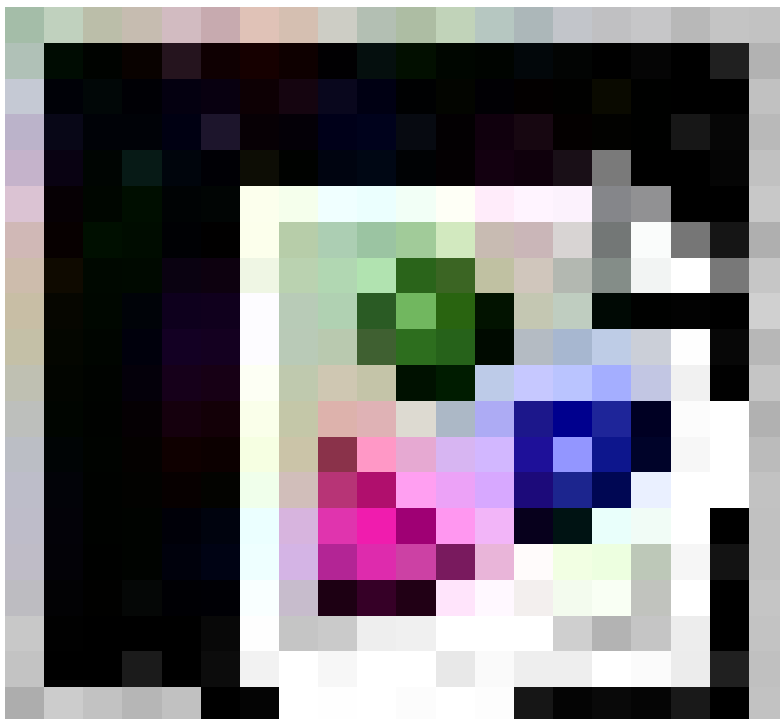
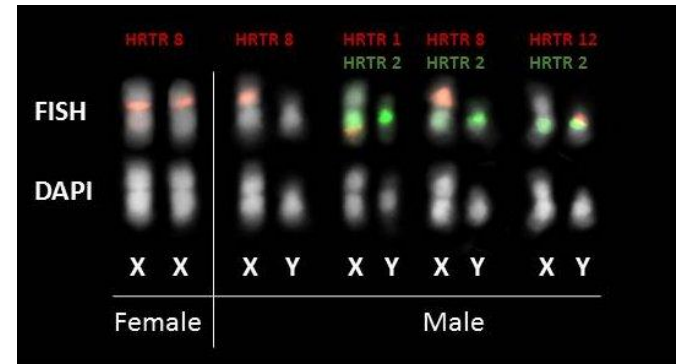
Results

25 % of genome

12 main satellite families

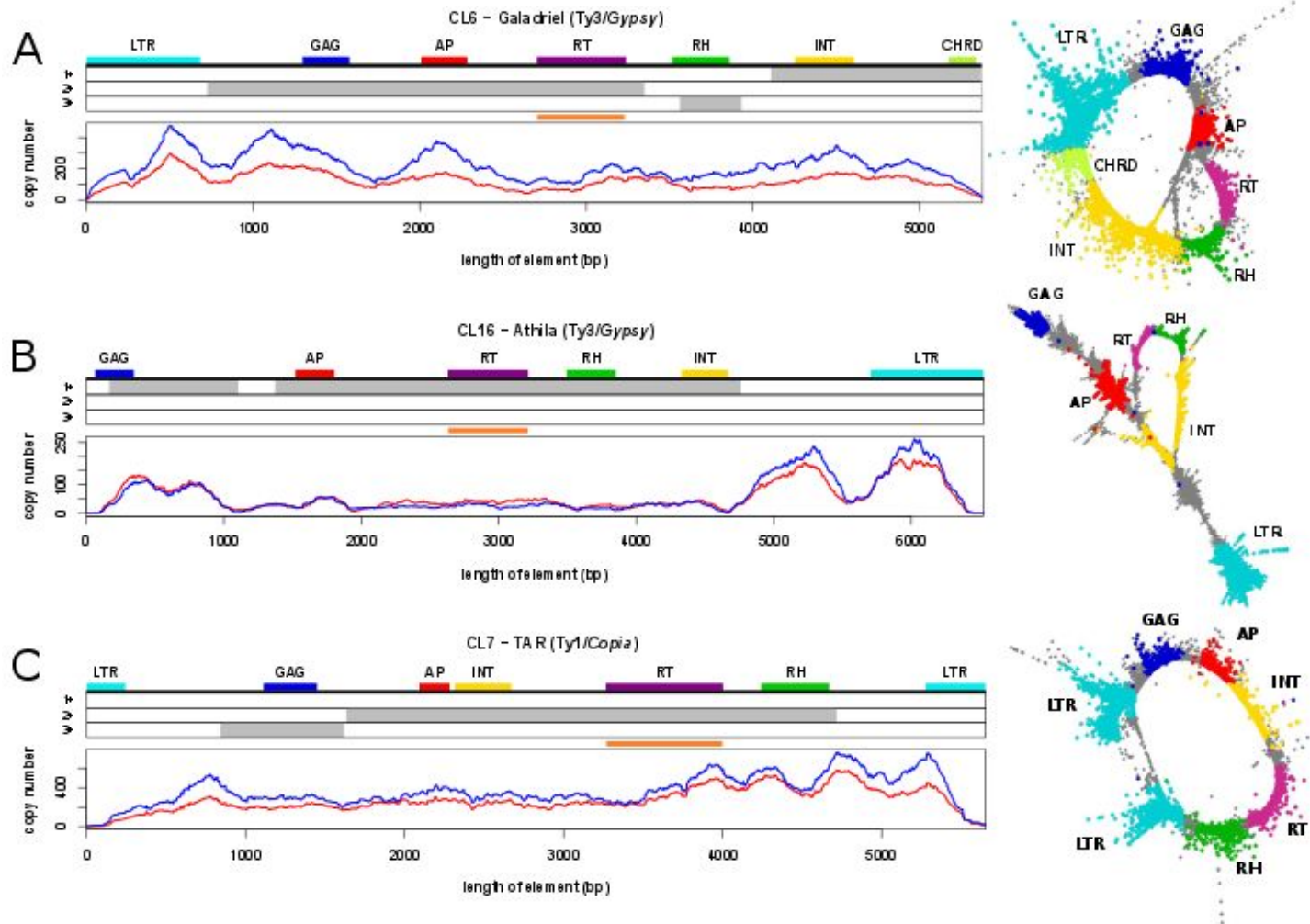
Sex-specific and sex- accumulated satellites

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





# No interesting results for transposable elements :(



Thank you for your attention  
:)