

## Introduction

- Polysaccharides are the main macromolecule components in wine.
- The research on polysaccharides has attracted significant interest recently because they can interact with wine aroma and flavor compounds to affect sensory quality.
- The main polysaccharides in wine were derived from yeasts and grapes.
- Understanding the structural characterization of polysaccharides from different sources is extremely important for wine organoleptic quality.

## Yeast Polysaccharides Extraction

- Hot water extraction method and alkaline extraction method were used to extract two yeast polysaccharides.

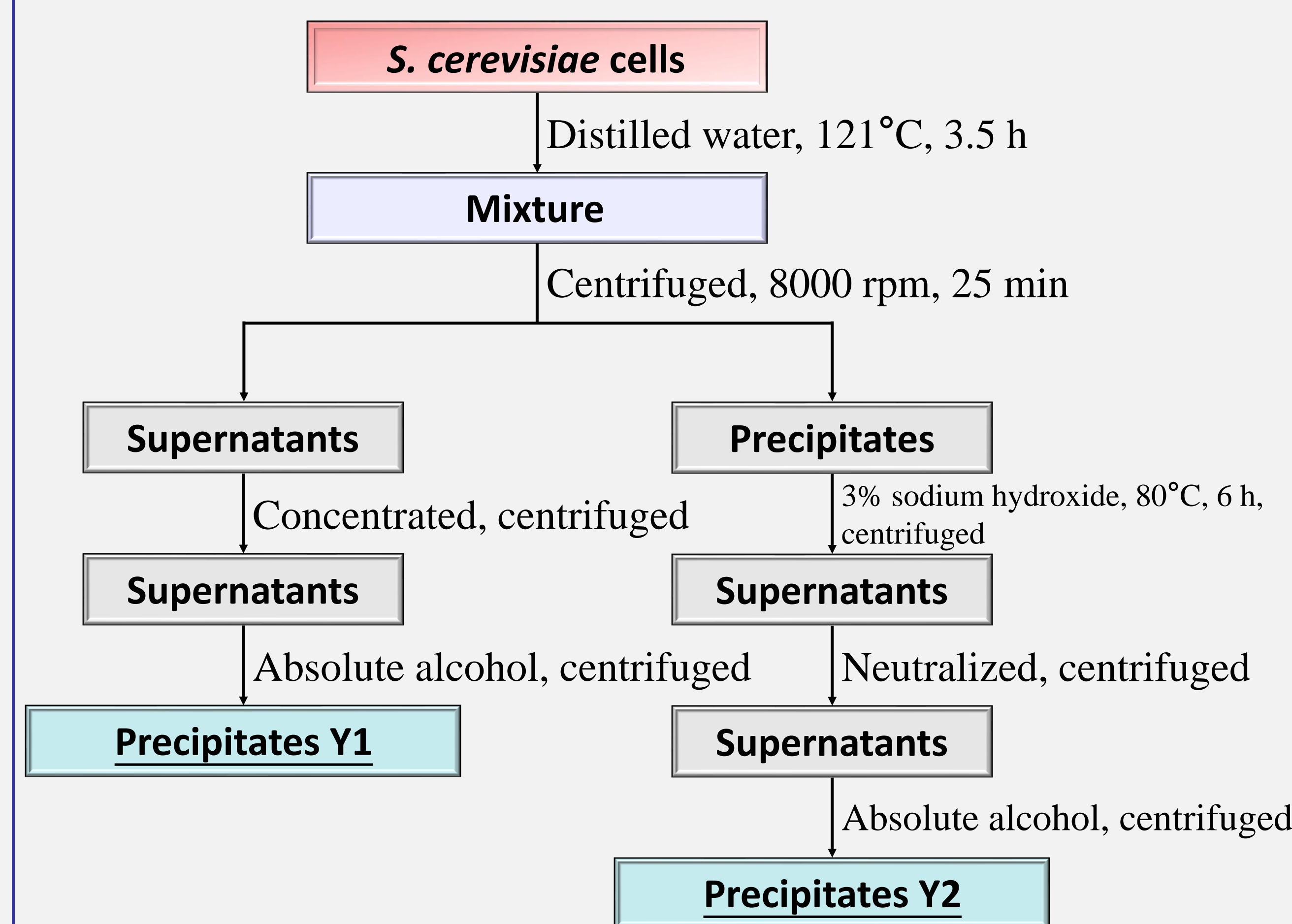


Fig. 1. Yeast Polysaccharides Extraction

## Results

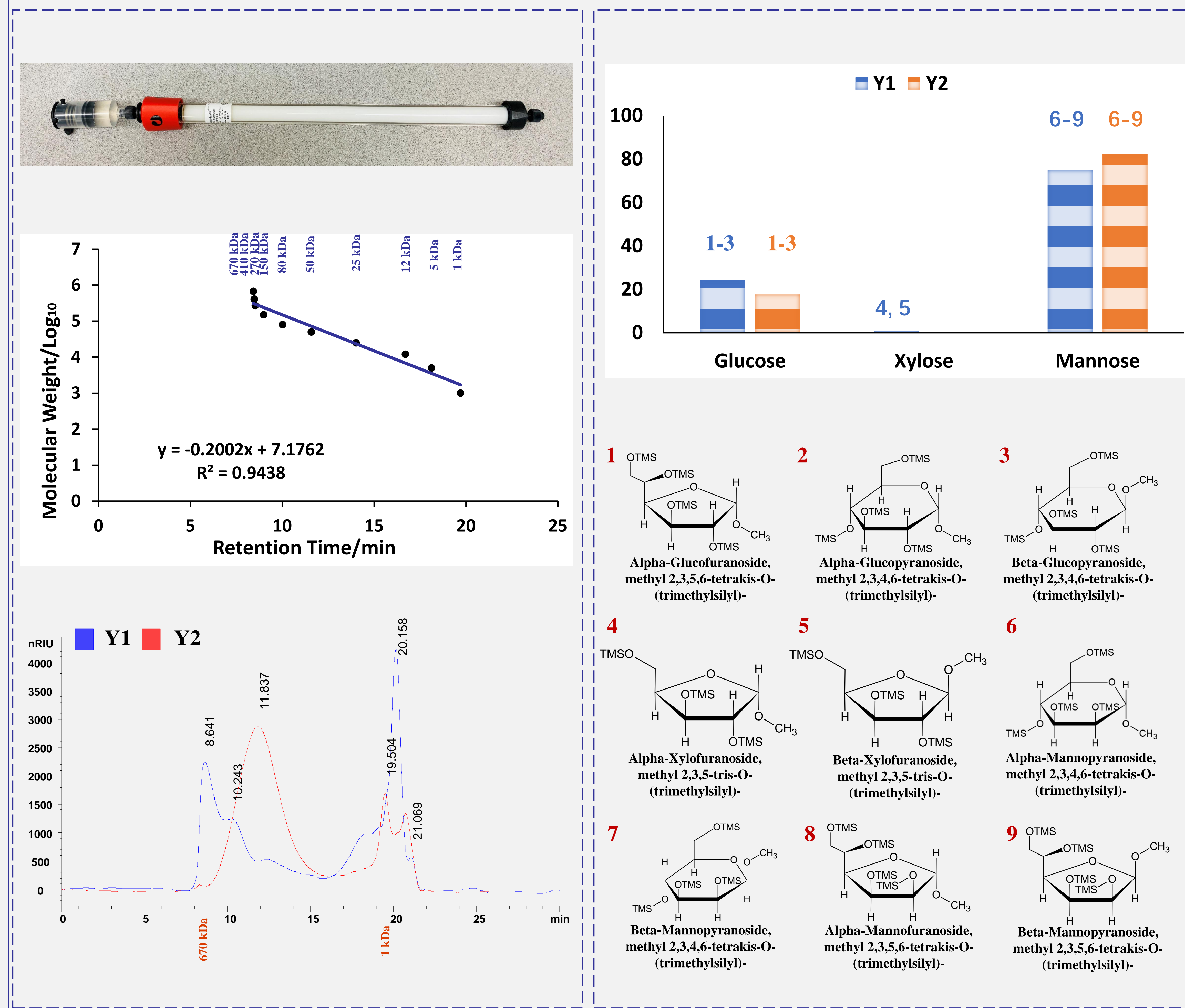


Fig. 2. Left: Molecular size calibration curve and molecular weight distribution by HPLC-SEC; Right: Main polysaccharides composition.

## Yeast Polysaccharides Analysis

### MOLECULAR WEIGHT

Size exclusion liquid chromatography was used with an Agilent 1100 HPLC coupled to a RID detector operated in positive polarity. Separation was performed at 35°C in a Superdex™ 200 Increase 10/300 (10mm x 300 mm) GL column. Different MW Dextran were used for calibration.

### SUGAR STANDARDS

Glucose, xylose, mannose, arabinose, galactose, rhamnose, fucose, glucuronic acid and galacturonic acid were used as sugar standards.

### SUGAR COMPOSITION

#### Methanolysis

HCl in methanol (0.5 mL, 0.5 M) at 85°C for 18 h

#### Internal standard

myo-inositol in pyridine (0.2 mL, 0.1 mg/mL)

#### Evaporation

Dried under a flow of nitrogen

#### Silylation

0.1 mL 1-(trimethylsilyl)imidazole at 80°C for 30 min

#### GC-MS

HP5MS (30 m, 250 μm, 0.25 μm), Inlet temperature: 270°C; Hydrogen flow: 1.5 mL/min; Split ratio: 10:1; The oven program: 130°C for 2 min; with 2°C/min to 200°C; with 20°C/min to 280°C, hold for 7 min

## Conclusions

- Two polysaccharides fractions had different molecular weight distribution.
- Structural characterization results showed different polysaccharides vary greatly in composition.
- Y1 was composed mainly of mannose, glucose and xylose, Y2 was composed mainly of mannose and glucose.

THANKS TO...