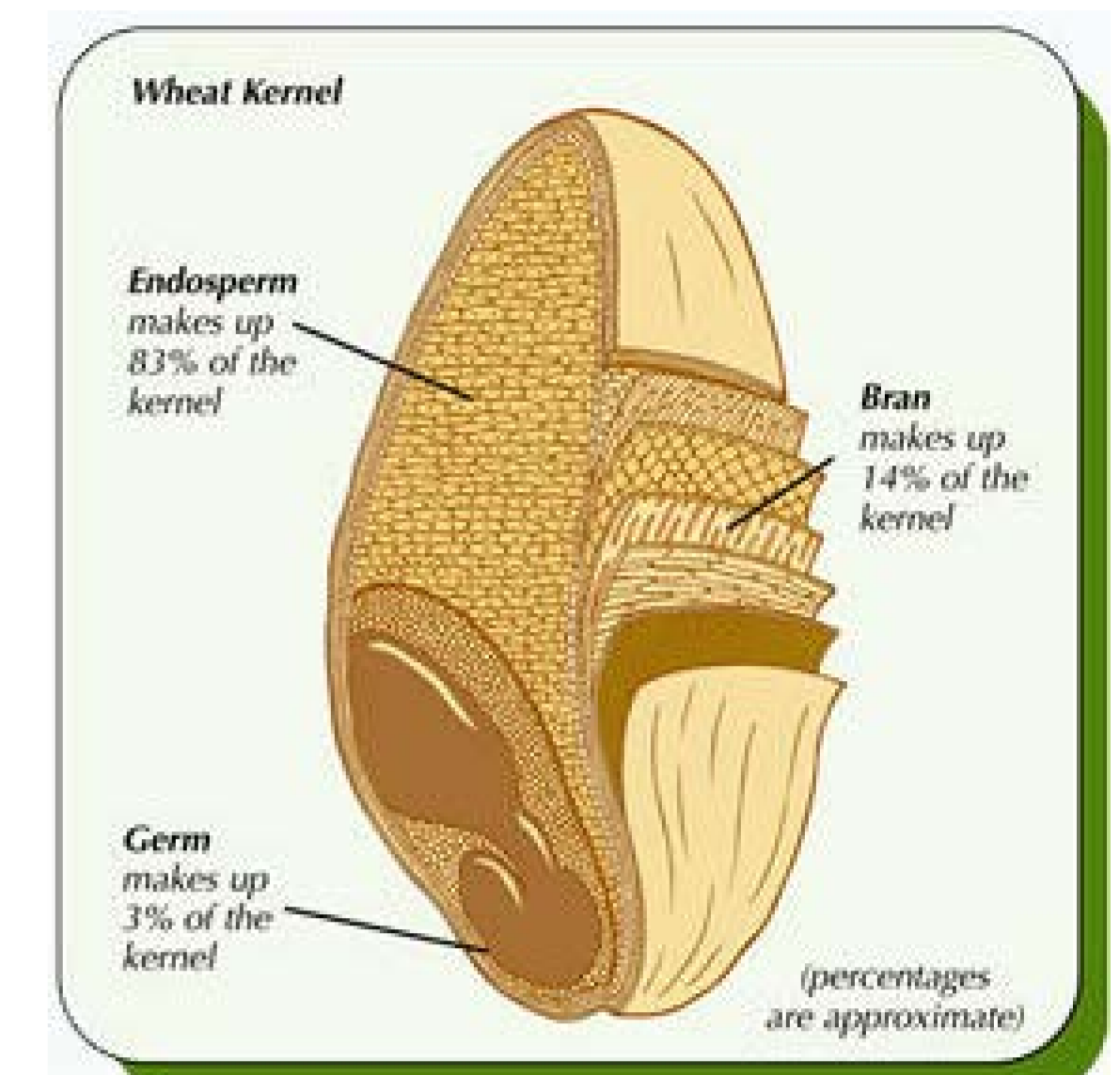


## 1. Introduction: Wheat bran

**Wheat bran** is a by-product in the processing of wheat flour. Recently it has been proposed as **biorefinary material** since it is estimated that 150 million of tons are produced per year worldwide [1].

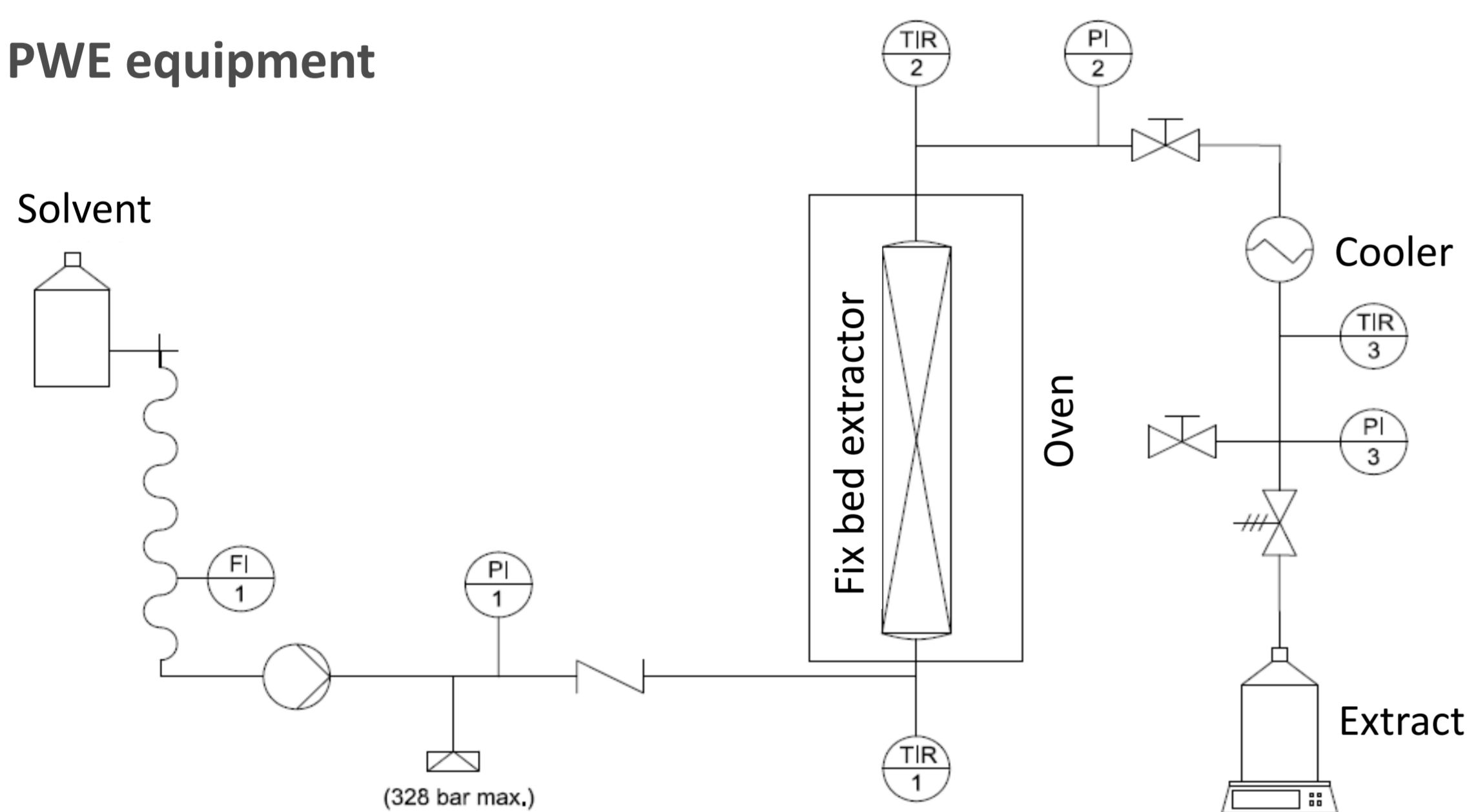
It has an important content of biological active compounds such as alkylresorcinols and other phenolic compounds. Polyphenolic compounds can be present in free or soluble form as well as in insoluble form bond to the cell wall components.

In this work, subcritical water (SW) has been used as an alternative solvent to extract polyphenolic compounds. SW is a non-expensive and environmental friendly solvent.



## 2. Experimental section

PWE equipment



Pressurized water extraction (PWE)

p (MPa)	9
T (°C)	55-115
t, min	60

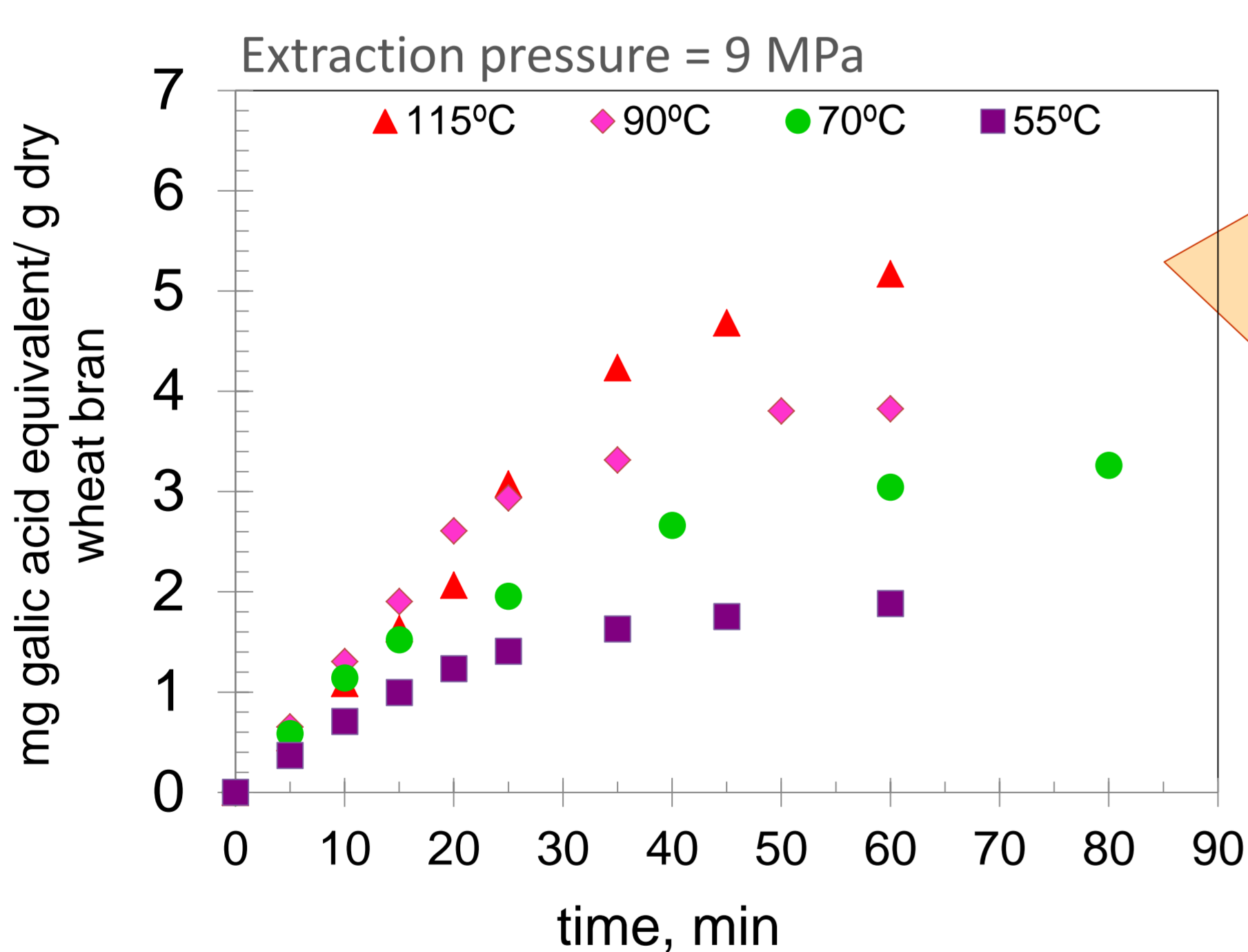
Determination of total polyphenol content

compare to

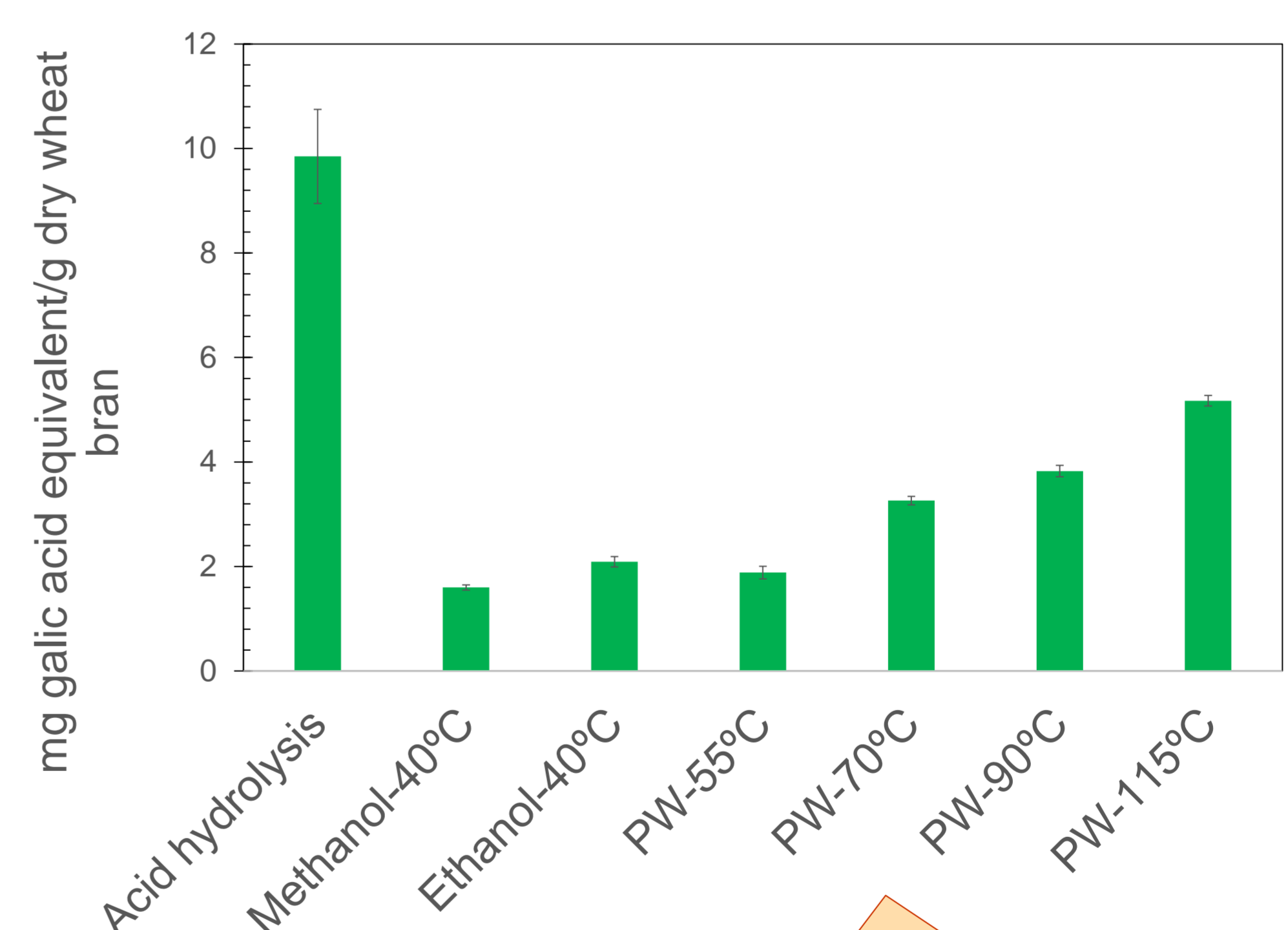
Soluble phenolic compounds: ethanol, methanol  
Insoluble phenolic compounds: acid hydrolysis [3]

## 3. Results and discussion

Polyphenols extraction curves



Total polyphenol content increased with temperature probably due to the lower dielectric constant of water that enhances polyphenols solubilisation



Extraction yield with SW was higher than the polyphenol content obtained in methanolic and ethanolic extracts at 40°C. Although still lower than the total fraction of insoluble polyphenolic compounds after acid hydrolysis

### Bibliography:

- [1] E. Alonso Journal of Supercritical Fluids, 133 (2018), 603-614
- [2] S. Rebolledo et al. Journal of Food Engineering, 119 (2013), 814-821.
- [3] S. Arranz and F.S. Calixto, Journal of Cereal Science, 51 (2010), 313-318.