

# DETERMINATION OF THE CONTENT OF ELLAGIC ACID IN THE FRUIT OF SELECTED SPECIES OF WILD ROSES

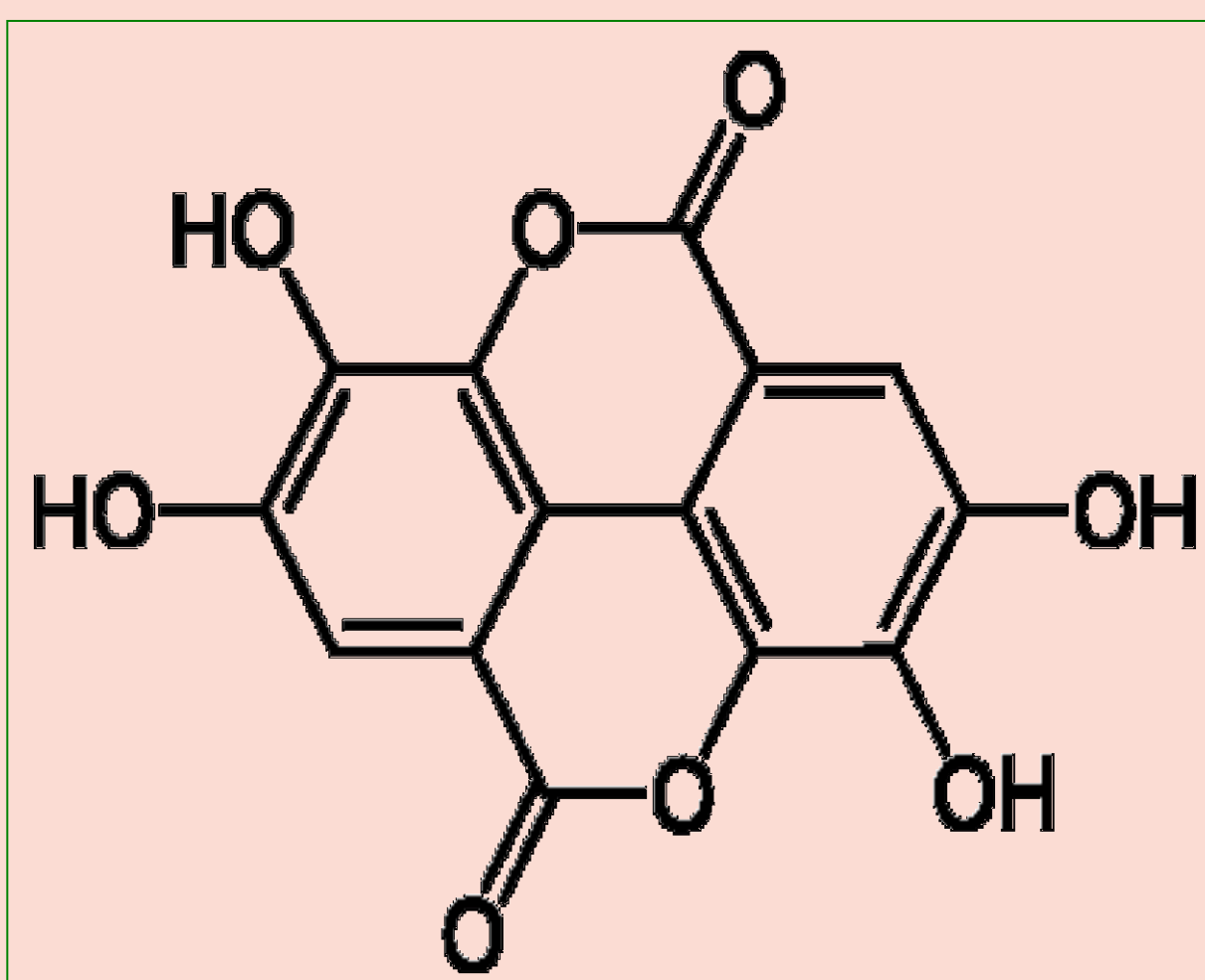
Katarzyna Karczmarz<sup>1</sup>, Agnieszka Szmagara<sup>2</sup>

<sup>1</sup>Department for Natural Foundations of Landscape Architecture, The John Paul II Catholic University of Lublin, Konstantynów 1H, 20-708 Lublin

<sup>2</sup>Laboratory of Composite and Biomimetic Materials, Centre for Interdisciplinary Research, The John Paul II Catholic University of Lublin, Konstantynów 1J, 20-708 Lublin

## Ellagic acid (KE)

is a natural antioxidant belonging to the group of polyphenol compounds. It shows a broad spectrum of healthy activities, from prevention of cancer to antiviral properties. It is present in many fruits of the family Rosaceae: strawberries, raspberries, blackberries and walnuts, cranberries and grapes. Available literature indicates that the fruits of roses, in addition to their aesthetic and functional qualities, also have therapeutic properties, among others related to the high content of polyphenols including the ellagic acid derivatives in the raw material.



The structural formula of ellagic acid



*R. canina*



*R. moyesii*



*R. pendulina*

## Methods

### Sample preparation

Six samples (three hypancium and three seeds) originated from different Rosa genus were collected, frozen, lyophilized, grounded and homogenized.

The extracts of powdered plant materials were performed in triplicate with 0.04 M borax-methanol solution according to following procedure: shaking (1 min hand-shaken, 30 sec vortex shaken, 15 min see-saw rocker (70 osc./min) centrifuging (8.000 rpm, 5 min). Supernatant were collected and transfer to spectrofluorimetric analysis

### Spectrofluorimetric analysis

Spectrofluorimeter F-2000 Hitachi (Japan) was used to analysis of samples. The intensity of radiation was measured after excitation at wavelength  $\lambda_{ex} = 383$  nm, and emission  $\lambda_{em} = 456$  nm.

Concentration of ellagic acid-borax complex in methanolic extracts was determined using the method of standard additions (4 levels), due to complexity of plant material matrix. Every measurement was triplicate.

## Results

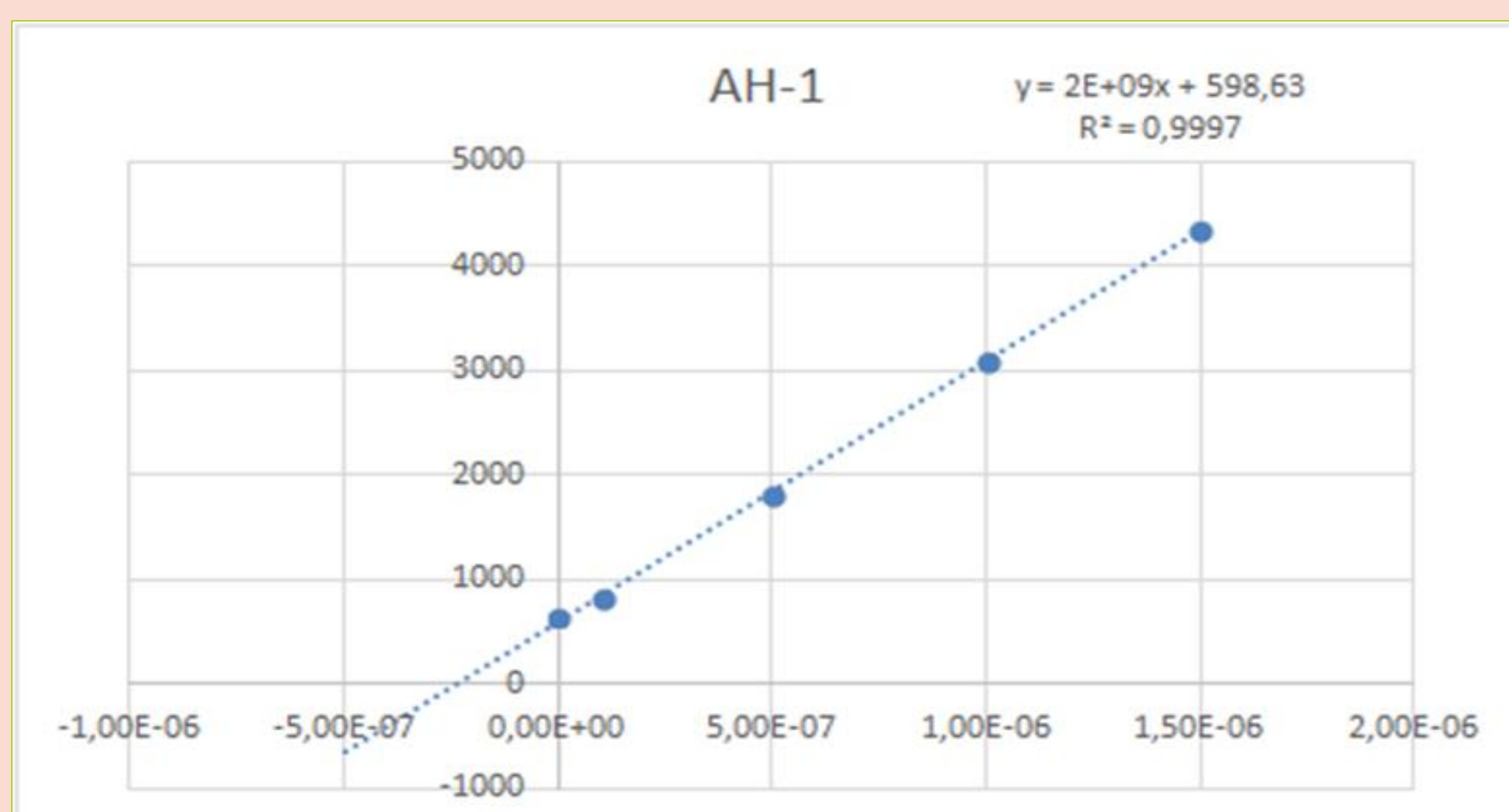


Figure 1.

Table 1. Free ellagic acid content in different roses are presented in table

| sample                    | content of free ellagic acid [ $\mu\text{g/g}$ lyophilisate] |        |         |        |
|---------------------------|--|--------|---------|--------|
|                           | Hypancium  |        | seeds   |        |
| A ( <i>R. canina</i> )    | AH-1   | 36,28  | AN-1    | 27,53  |
|                           | AH-2   | 36,59  | AN-2    | 24,51  |
|                           | AH-3   | 37,27  | AN-3    | 21,13  |
|                           | AH mean  | 36,71  | AN mean | 27,11  |
|                           | SD   | 0,50   | SD      | 1,64   |
|                           | RSD  | 1,37 % | RSD     | 6,21 % |
| B ( <i>R. moyesii</i> )   | BH-1   | 67,55  | BN-1    | 109,07 |
|                           | BH-2   | 68,85  | BN-2    | 103,27 |
|                           | BH-3   | 68,48  | BN-3    | 104,73 |
|                           | BH mean  | 68,29  | BN mean | 105,69 |
|                           | SD   | 0,67   | SD      | 3,02   |
|                           | RSD  | 0,98 % | RSD     | 2,85 % |
| C ( <i>R. pendulina</i> ) | CH-1   | 245,77 | CN-1    | 55,02  |
|                           | CH-2   | 251,46 | CN-2    | 55,84  |
|                           | CH-3   | 245,93 | CN-3    | 54,78  |
|                           | CH mean  | 247,72 | CN mean | 55,21  |
|                           | SD   | 3,24   | SD      | 0,55   |
|                           | RSD  | 1,31 % | RSD     | 1,00 % |