

THE DETECTION OF ANTHOCYANINS THROUGH EXTRACTION OF RED CABBAGE
(*BRASSICA OLERACEA* VAR. *CAPITATA* F. *RUBRA*), GRAPES (*VITIS VINIFERA*
SUBSP. VINIFERA) AND AUBERGINE (*SOLANUM MELONGENA*)

Milena Ryk

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ABSTRACT

Anthocyanins is a group of organic compounds belonging to the class of flavonoid glycosides. These group of compounds is characterized by a carbon skeleton structure – C6-C3-C6. Anthocyanins are natural plant pigments belonging to the group of non-nutritive substances. They are present in flowers, leaves, stalks and fruits of a plant. They are also found, however, rather rarely in xylem and roots. Inside the cells these compounds are located in vacuoles, in a form of granules with various sizes. However, there is no anthocyanins in a cell wall. There is a positive correlation between the concentration of anthocyanins and a degree of ripeness of a plant. Furthermore, the concentration of anthocyanins tends to rise with an increasing level of ripening. Anthocyanins are plentiful in plants such as raspberry, black currant, elderberry, blackberry, chokeberry, red cabbage, grapes and an eggplant (Encyklopedia PWN 1983; Encyklopedia PWN 1982). Because of the identified healing/therapeutic properties anthocyanins became an issue of interest for a large number of analytic laboratories throughout the world. A diet rich in food containing anthocyanins has been proven to have anti-allergic and anti-oxidative properties, it has a positive impact on digestion and regulates the lipid homeostasis.

For an extraction of anthocyanins from the cells, three types of plants have been chosen – a red cabbage, grapes and an eggplant. For this investigation the parts of the plants used were: cabbage leaves, the rind of grapes and the rind of an eggplant. In this extraction experiment, four types of solutions have been used. These include: water acidified with an acetic acid, water acidified with a hydrochloric acid, water solutions of methanol with acetic acid (is it one solution or two separate?), and a water solution of acetone and acetic acid.

The extraction of pigments from the plant tissues resulted in obtaining a series of solutions with a diversified colours and a differential saturation of these colours. Subsequently, the pH of the obtained solutions was changed and further colour changes were analysed. Next, the changes in colour has been observed when the plant tissues used in the experiment were exposed to the direct contact with lemon juice or sodium hydroxide. The change in colour of plant pigment isolated from tissues and the colour change resulting from the direct contact with a biological material led to identical results.

Milena Ryk, Ith Academic High School Janina Kossakowska-Debicka in Kielce

e-mail: mill.r@onet.pl