Journal of Nutrition & Food Sciences
ISSN: 2155-9600

Rybakowska, J Nutr Food Sci 2018, 8:2
DOI: 10.4172/2155-9600.1000e142

Editorial Open Access

Inconspicuous Fruits That Heal

Iwona Rybakowska*

Department of Biochemistry and Clinical Physiology, Medical University of Gdansk, Poland

Introduction

There are many fruits that are inconspicuous but they heal for example some varieties of pears, raspberries and aronia [1]. Different disease may be treated by consuming fruits and there natural components like dietary fiber, antioxidant compound, phenolic acids, flavonioids, polyphenols [1]. Fruits may also change levels of compounds which affecting the appearance of 21st century diseases related to the level of plasma lipid like cardiovascular disease but we cannot forget about benefit fruits on chronic diseases such as cancer, neurovegetative impairments [2]. Consuming fruits we must remember that the peels contain more bioactive substances than pelled fruits [2] because of this we should use as little pesticides as possible when the fruits ripen [2].

"Forgotten fruits" as Cocomerina pear (Figure 1) (*Pyrus* sp.) is one of a major fruit of temperate regions [1]. Even leaves of Cocomerina pear have favourable antiseptic properties for urinary tract. While fruits contain phenolic compounds including flavonoids, flavones, isoflavones, flavonones, anthocyanins and catechins having antioxidant properties [1].

Fresh juice, especially the Cocomerina pear late type juice, is especially rich in polyphenols, anthocyanins and flavonoids and showed a significant antioxidant and anti-inflammatory activity when compared with other fruit juice even early type of Cocomerina pear.

The other fruit is raspberry promotes brown and beige ("good") adipocyte development in mice fed high-fat diet through activation of AMP-activated protein kinase (AMPK) [2]. Study on activity of nucleotide metabolism enzymes demonstrated higher activity of adenosine deaminase in the heart wild type mice on high-fat diet which can lead to atherosclerosis because of lower concentration of adenosine [3]. In this model AMPK, which can affect metabolism of nucleotides, decrease in heart mice fed high fat diet [3]. Also different length of diet can make changes in activities of enzymes for example AMPK [4]. So it is possible that raspberry may change metabolism of nucleotides and energetic metabolism in muscles mice fed high fat diet.

Aronia berries have also high contents of phenolic phytochemicals which concentrations are over five-fold higher than in cranberries.

Figure 1: Cocomerina pear.

Figure 2: A bush of aronia berries from early spring to late autumn.

Having so many quantities benefit compounds aronia exerts action antioxidant but also antimutagenic, cardioprotective, antidiabetic and inhibitory on cancer cell proliferation. Aronia juice may affect weight reduction [5].

Mild fibrosis induced by a high-fat diet was reduced in livers of mice fed a high-fat diet containing aronia berries. RNA sequencing and RT-qPCR analyses revealed that gene expression levels of insulin-like growth factor binding protein 1 (Igfbp1) and growth arrest and DNA-damage-inducible 45 gamma (Gadd45 g) were increased in livers from mice fed a high-fat diet containing aronia berries. Furthermore, results of an enzyme-linked immunoassay showed that a secreted protein levels of fatty acid-binding protein (FABP1) and FABP4 were reduced in serum from mice fed a high-fat diet containing aronia berries. Recovery from liver fibrosis is associated with expression levels of Gadd45 g and Igfbp1 in the liver. The beneficial effects of aronia berries on liver fibrosis reduce the risk of liver cancer diseases and insulin resistance, resulting in reduction of serum FABP1 and FABP4 levels (Figure 2) [5].

Antioxidant and other properties of this fruits should convince us to eat fruits every day even those "forgotten".

References

1. Giamperi L, Ricci D, Bucchini AEA (2017) Fresh juices of Cocomerina pear, an ancient and rare fruit with red pulp: a new source of polyphenols for human health. J Food Nutr Popul Health 1: 26.

2. Zou T, Wang Bo, Yang Q, Du M (2018) Raspberry promotes brown and beige adipocyte development in mice fed high-fat diet through activation of AMP-activated protein kinase (AMPK) α1. J Nutr Biochem.

***Corresponding author:** Iwona Rybakowska, Professor, Department of Biochemistry and Clinical Physiology, Medical University of Gdansk, Debinki 1, 80-211 Gdansk, Poland, Tel: (610) 457-5234; E-mail: iwonar@gumed.edu.pl

Received March 02, 2018; **Accepted** March 06, 2018; **Published** March 12, 2018

Citation: Rybakowska I (2018) Inconspicuous Fruits That Heal. J Nutr Food Sci 8: e142. doi: 10.4172/2155-9600.1000e142

3. Rybakowska IM, Slominska EM, Romaszko P, Olkowicz M, Kaletha K, et al. (2015) AMP-regulated protein kinase activity in the hearts of mice treated with low-or high-fat diet measured using novel LC-MS method. Mol Cell Biochem 404: 5-10.

4. Rybakowska I, Slominska EM, Romaszko P, Lipiński M, Zukowska P, et al. (2014) Activity of AMP-regulated Protein kinase and AMP-deaminase in the heart of mice fed high-fat diet. Nucleosides, Nucleotides and Nucleic Acids 33: 347-352.

5. Yamane T, Kozuka M, Yamamoto Y, Nakano Y, Nakagaki T, et al. (2016) Effectiveness of aronia berries for reduction of mild fibrosis and gene expression analysis in livers from mice fed a high fat diet with aronia berries. Functional Food Health Dis 6: 144-157.