

## Is Drinking of Coffee and Using Of Cardamom in the Kitchen Beneficial for our Health?

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Veronika Doubnerová has written the short report article on the article written by Refaat G. Hamzaa, and Nadia N. Osman, Who presented interesting findings showing that administration of cardamom and coffee mixture to experimental animals decreases oxidative stress caused by  $\gamma$ -irradiation. Rats fed on balanced diet and received orally the extract of coffee and cardamom mixture (60 mg/100g) for 8 weeks, and exposed to  $\gamma$ -irradiation at the 4th week had a lower level of lipid peroxidation, cholesterol, triglycerides, Low-Density Lipoprotein Cholesterol (LDL-C), very Low-Density Lipoprotein Cholesterol (vLDL-C), lower activity of enzymes indicating liver impairment (ALT, AST and GGT), and contrary higher level of antioxidants (glutathione, superoxide dismutase activity), higher level of some hormones (testosterone and insulin), and higher level of High-Density Lipoprotein Cholesterol (HDL-C) than rats, which did not received coffee and cardamom mixture, but were exposed to  $\gamma$ -irradiation. Contemporarily, positive control group (represented by rats, which were fed by cardamom and coffee mixture, but were not exposed to  $\gamma$ -irradiation) and negative control group (rats exposed to  $\gamma$ -irradiation, but were not fed with cardamom and coffee mixture), were also processed. From the results, it is apparent that  $\gamma$ -irradiation has harmful effect on liver function, lipid and lipoprotein metabolism, on antioxidant system, and on some hormones. However, this adverse effect can be ameliorate using coffee and cardamom mixture [1].

With regard to the fact that oxidative stress is caused not only by  $\gamma$ -irradiation, which was studied in this work in connection with military or industrial accidents or therapeutic treatments, but also by other stress factors, it will be interesting to know how beneficial is cardamom and coffee for humans. Whereas beneficial antioxidant effects of various types of tea and juices from fruit and vegetable (especially herbal and green teas and berries) are well known, the profitable effect of coffee may be surprising. In the past high intakes of coffee and caffeine, were associated rather with unhealthy behaviors, such as cigarette smoking and physical inactivity. But there is little evidence of health risks and some evidence of health benefits for adults consuming moderate amounts of coffee (3-4 cups/day, providing 300-400 mg/day of caffeine) [2]. For example Bidel et al. [3] did not find a significant association between coffee consumption and the risk of gastric, and/or pancreatic cancers during a prospective cohort study, including 60,000 Finns, whose coffee consumption is the highest in the world. Boggs et al. [4] did not find association with the risk of breast cancer. Moreover, recent epidemiological studies showed that moderate consumption of coffee decreased the risk of several degenerative diseases, including type 2 diabetes, Parkinson's disease, cardiovascular disease [2,5], gout [6], and even cancer. There are many studies supporting the hypothesis of an inverse association between coffee intake and cancer, e.g. oral cavity and pharynx cancer [7], and lethal prostate cancer [8]. Beneficial effects have been attributed in part to the antioxidant activity of coffee [5]. Besides purine alkaloid caffeine, coffee contains an important group of dietary phenols, chlorogenic acids, and several micronutrients including magnesium, potassium, niacin, and vitamin E, which could also contribute to the observed effects of

coffee consumption [2]. However, unfiltered coffee brew also contains cafestol and kahweol, which are in the case of high coffee consumption connected with cholesterol-raising effect.

Since cholesterol-raising effect was not observed in rats receiving orally the extract of coffee and cardamom mixture (60 mg/100g), cardamom is considered as compound ameliorating site effects of coffee. Similarly, as coffee, cardamom has antioxidant properties (main constituents are cineole and  $\alpha$ -terpinyl acetate), and can increase levels of glutathione [1,5]. In addition, cardamom increases levels of antioxidant enzymes, has antihypertensive, gastroprotective, anticancer, and antidiabetic properties [1].

I think that the significance of this report article consists at least in two points. Firstly, Refaat G. Hamzaa and Nadia N. Osman investigated mixture of two biologically active extracts, which is important since antioxidants can act synergistically, additively, or antagonistically, to inhibit reactive oxygen species, and their antioxidant effect depends on their structure and relative concentration [9]. Secondly, authors shed light on biological effects of coffee and cardamom mixture, and found out that potential negative effects of one extract can be simultaneously decreased by effect of second extract. Moreover, searching for suitable antioxidants, ameliorating various types of oxidative stresses, is still needed. That is the reason why I am glad that these authors continue in their work, and recently have published next interesting article concerning the antioxidant role of mulberry fruits in oxidative stress [10].

### References

1. Hamzaa RG, Osman NN (2012) Using of coffee and cardamom mixture to ameliorate oxidative stress induced in  $\gamma$ -irradiated rats. *Biochem Anal Biochem* 1:113.
2. Higdon JV, Frei B (2006) Coffee and health: a review of recent human research. *Crit Rev Food Sci Nutr* 46: 101-123.
3. Bidel S, Hu G, Jousilahti P, Pukkala E, Hakulinen T, et al. (2012) Coffee consumption and risk of gastric and pancreatic cancer-A prospective cohort study. *Int J Cancer* 132: 1651-1659.
4. Boggs DA, Palmer JR, Stampfer MJ, Spiegelman D, Adams-Campbell LL, et al. (2010) Tea and coffee intake in relation to risk of breast cancer in the Black Women's Health Study. *Cancer Causes Control* 21: 1941-1948.
5. Bakuradze T, Boehm N, Janzowski C, Lang R, Hofmann T, et al. (2011) Antioxidant-rich coffee reduces DNA damage, elevates glutathione status and contributes to weight control: results from an intervention study. *Mol Nutr Food Res* 55: 793-797.

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6. Choi HK, Curhan G (2010) Coffee consumption and risk of incident gout in women: the Nurses' Health Study. *Am J Clin Nutr* 92: 922-927.
7. Galeone C, Tavani A, Pelucchi C, Turati F, Winn DM, et al. (2010) Coffee and tea intake and risk of head and neck cancer: pooled analysis in the international head and neck cancer epidemiology consortium. *Cancer Epidemiol Biomarkers Prev* 19: 1723-1736.
8. Wilson KM, Kasperzyk JL, Rider JR, Kenfield S, van Dam RM, et al. (2011) Coffee consumption and prostate cancer risk and progression in the Health Professionals Follow-up Study. *J Natl Cancer Inst* 103: 876-884.
9. Jacobo-Velazquez DA, Cisneros-Zevallos L (2009) Correlations of antioxidant activity against phenolic content revisited: a new approach in data analysis for food and medicinal plants. *J Food Sci* 74: 107-113.
10. Hamzaa RG, El Shahat AN, HMS M (2012) The antioxidant role of mulberry (*Morus alba* L.) Fruits in ameliorating the oxidative stress induced in  $\gamma$ -irradiated male rats. *Biochem Anal Biochem* 1: 122.

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