

Antioxidant and Antimicrobial properties of Glycine Max-A review

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Abstract

Vegetable soybean is rich in phytochemicals beneficial to the human being and is therefore considered a nutraceutical or a functional food crop. Soybean as a “functional food” that reduces the risk of range of hazardous diseases like atherosclerosis, osteoporosis, various types of cancer (breast, uterus cancer, and prostate) has attracted people’s attention across the globe. People in India are becoming increasingly aware about the health benefits of consuming soy food. Although isoflavones present in soy are believed to be major components responsible for the antioxidative activity, a recent study showed that anthocyanins present in black soybean had strong antioxidative potential. This review article focuses on both the antioxidant and antimicrobial activity of Glycine max.

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[1] Abe T, Kano M, Sasahara T. Quantitative difference of 7s globulin on vegetable soybean seeds. Journal Of The Japanese Society For Food Science And Technology. 2005; 52:107-113.

[2] Ahmed N S, Helal F R. The infrared absorption spectra for measuring the unsaturation in milk fat and oils. Milchwissenschaft. 1977; 32, 272-273.

[3] Al- Wahsh I A, Horner H T, Palmer G, Reddy M B, Massey L K. Oxalate and phytate of soy foods. Journal Of Agricultural And Food Chemistry. 2005; 53:5670-5674.

[4] Andi O C, Tz SG, Been L, Yung S C . Effects of Precooling and fresh storage conditions on the qualities of fresh frozen vegetable soybeans. Food Science, 1995; 1: 12-26.

[5] Beckmann K B, Ames V N . Oxidative decay of DNA. Journal of Biological Chemistry. 1997; 272:19633-19636.

[6] Boveris A, Cadenas E, Stoppani A O M. Role of ubiquinone in the mitochondrial generation of hydrogen peroxide. Journal of Biochemistry. 1976; 156: 435-444.

[7] Boveris A, Oshino N, Chance B. The cellular production of hydrogen peroxide. Journal of Biochemistry. 1972; 128: 617-630.

- [8] Bucher J R, Tien M, Aust S D. The requirement for ferric in the initiation of lipid peroxidation by chelated ferrous ion. *Biochemistry, Biophysics*, 1983; 19:777-784.
- [9] Carter T E, Shanmugasundaram S. Edamame, the vegetable soybean .In *underutilized crop:pulses and vegetable*(T.Howard,ed).1993;6: 219-239.
- [10] Demirbaker M, Blomberg, LG.Group separation of triacyl glycerols on micropacked argentation columns using supercritical media as mobile phase. *Journal Of Chromatographic Science*.1990; 28: 67-72.
- [11] Dougherty R H, Knapp F W. Vegetable type soybeans as dry bean products. *Proceedings Of The Florida State Horticultural Society*.1973; 85:187-189.
- [12] Duppong L M, Hatterman VH.Yield and quality of vegetable soybean cultivars for production in North Dakota. *Hort technology*. 2005;15: 896-900.
- [13] Eun H S, Young A C, Yong H K, Moo H Y. Variation of 7s and 11s seed protein concentrations in different food types of soybean seed. *Korean Journal Of Crop Science*. 1999;4: 350-354.
- [14] Fang Y Z, Yang S, Wu G Y. Free radicals antioxidants and nutrition.2002; 18: 872-879.
- [15] Fehr W R, Caviness C E. Burmood D T, Pennington J S. Development description of soybean,*Glycine max(L) Mer*. *Crop Science*.1971; 11: 929-931.
- [16] George P, Nicholas M,Catherine A, Rice E.The Polyphenolic content of fruit and vegetables and their antioxidant activities. What does a serving constitute? *Journal of Food Science* .1998;30: 153-160.
- [17] Goubran R, Garti N. Stability of water in oil emulsions using high molecular weight emulsifiers . *Journal Of Dispersion Science And Technology*.2000; 9: 131-148.
- [18] Gupta A K, Deodhar, A D. Variation in trypsin inhibitor activity in soybean (*Glycine max*). *Indian Journal Of Nutrition And Diabetics*. 1975; 3: 81-84.
- [19] Han L D, Hu J, Xu H M, Qiu J X, Huang Z H. Study on method of core collection construction for sensory quality traits of summer planted vegetable soybean.*Journal Of Zhejiang University (Agriculture And Life Sciences)*, 2005;31:288-292.
- [20] Islam M N, Lea R A. Effect of maturity on the amino acid composition and freezing quality of "Emerald" soybean. *Journal Of Food Science*. 1981; 46: 658-659.
- [21] Jae Y S, Chul J K, Gil H A. Improved quality of blanched vegetable soybeans (*Glycine max L.Merrill*) By NaCl. *Journal of Food Science And Biotechnology*, 2005; 12: 578-580.
- [22] Jae Y S, Gil H A,Chul J K.Color, texture,nutrient contents and sensory values of vegetable soybean. *Journal of Food Chemistry*, 2003; 83: 69-74.
- [23] Jae H L, Marjory R, Ronald J F, Steve K, Martin S T, Steven, Schwartz J, Yael V. Isoflavone characterisation and antioxidant activity of ohio soybeans. *Journal Of Agricultural And Food Chemistry*.2004; 52: 2647-2651.
- [24] Johnson D, Wang S, Suzuki A. Edamame:A vegetable soybean for Colorado.In J.Janick(Ed), *Perspective on new crops and uses*.1999;16: 385-387.
- [25] Kim J A, Jung W S, Chun S C, Yu C Y, Ma K H, Gwag J G, Chung I M. A correlation between the level of phenolic compounds and the antioxidant capacity in cooked-with-rice and vegetable soybean (*Glycine max L.*) Varieties.*European Food Research And Technology*.2008; 224: 259-270.
- [26] Konovsky J, Lumpkin T A ,Mc Clary D. Edamame:The vegetable soybean. In *Understanding the Japanese Food and Agrimarket:A multifaceted opportunity*(A. D. O'Rourke, ed.),1994;16:173-181.
- [27] Krinsky B F, Drake M A, Civille G V, Dean L L, Hendrix K W, Sanders, T H .The development of a lexicon for frozen vegetable soybean (edamame). *Journal Of Sensory Studies*, 2006; 21: 644-653.
- [28] Kukreja R C, Jesse R L, Hess M L. Singlet oxygen: A potential culprit in myocardial injury?. *Molecular Cell Biochemistry*.2006; 111: 17-24.

- [29] Kuppusamy P, Zwier J L. Characterisation of free radical generation by Xanthine oxidase. Evidence for hydroxyl radical generation. *Journal of Biochemistry*.1989;264:9880-9884.
- [30] Lee J D, Hwang J H. Quality evaluation for vegetable use in local soybean cultivars with various seed coat colors. *Korean Journal Of Crop Science*, 1998; 2:83-88.
- [31] Lin C C.Frozen edamame:Global market conditions. II International Vegetable soybean Conference, 2000;93-96.
- [32] Liochev S. Fridovich L. The role of oxygen in the production of hydroxyl in vitro and in vivo free radical. *Biology Medicine*.1994; 16: 29-33.
- [33] Jim A K, Seung B H, WooSuk J, Chang Y Y, Kyung H M, Jae G G, MinC.Comparison of isoflavones composition in seed, embryo, cotyledon and seed coat of cooked-with rice and vegetable soybean (*Glycine max L.*) varieties. *Food Chemistry*. 2007; 102: 738-744.
- [34] Machlin L J, Bendich L. Free radical tissue damages: Protective role of antioxidant nutrients. *FASEB Journal*, 1998; 1: 441-445.
- [35] Masuda R.Quality requirement and improvement of vegetable soybean. In:S.shanmugasundaram (ed),*Vegetable soybean:Research needs for production and quality improvement*. Asian Vegetable center,Taiwan, 1991;11:92-102.
- [36] Mbuvi, SW, Litchfield J B.Green soybean as vegetable.Comparing green soybean with green peas and lima beans, and maximized harvest time determination using mathematical modelling. *Journal Of Vegetable Crop Production*, 1995; 1;:99-121.
- [37] Mebrahtu T, Mohamed A, Wang C Y, Andebrhan, T. Analysis of isoflavone contents in vegetable soybeans. *Plant Foods For Human Journal* .2004; 16:132-134.
- [38] Mebrahtu T, Mohamed A. Genetic variation for green pod yield and quality among vegetable soybean genotypes. *Journal Of Crop Improvement*. 2000; 16: 113-130.
- [39] Mebrahtu T, Mohamed A, Abdulkadir E.Accumulation of phytate in vegetable –type soybean genotypes harvested at four developmental stages. *Journal of Plant Foods for Human Nutrition* .1997; 3:179-187.
- [40] Messina M .An overview of the health benefits of soyfoods and soybean isoflavones.In:Lumpkin, T. A & Shanmugasundaram, S(compilers),II International conference, Washington state University.2000;1:117-122.
- [41] Mohamed A I, Mebrahtu T, Rangappa M. Nutrient composition and anti nutritional factors in vegetable soybean (*Glycine max L. Merr*). *Journal of Plant Foods For Human Nutrition* . 1991; 41: 89-100.
- [42] Mohamed A I , Rangappa M. Nutrient composition and anti-nutritional factors in vegetable soybean.II .oil,fatty acids,sterols and lipooxygenase activity. *Food Chemistry*. 1992; 44: 277-282.
- [43] Mohamed A I, Rangappa M.Screening soybean (grain and vegetable) genotypes for nutrients and anti-nutritional factors. *Plant Foods For Human Nutrition*, 1992; 42: 87-96.
- [44] Neslihan A, Naharuga. *Journal of Food Chemistry*.2004;3: 184-187.
- [45] Potter S M. Soyprotein and isoflavones.Their effects on blood lipids and bone density in post menopausal women. *American Journal Of Clinical Nutrition*.2000; 68:1375-1379.
- [46] Prestamo G, Lesmes M, Otero L, Arroyo G. Soybean vegetable protein (tofu) Preserved with high pressure. *Journal Of Agricultural And Food Chemistry*.2000;7 :2943-2947.
- [47] Sandra R G, Rubia , Fabiana T M V, Waldiceu A. Evaluation of the antioxidant activity of soybean extract by different in vitro methods and investigation of this activity after its incorporation in topical formulations, *Journal of food science*. 2006; 2: 32-64.
- [48] Sasamura H, Takahashi A, Yuan, J. Antiproliferative and antiangiogenic activities of genistein in human renal cell carcinoma.*Journal Of Urology*. 2004; 64: 389-393.
- [49] Shanmugasundaram, S. Global extension and diversification of fresh and frozen vegetable soybean. II International Vegetable Soybean Conference.2001.

[50] Sheu S C, Chen A O .Lipoxygenase as blanching index for frozen vegetable soybeans. Journal Of Food Science, 1991; 56: 448-451.

[51] Shurtleff W, Aoyagi A. Green vegetable soybeans (edamame) and vegetable-type-soybeans-A bibliography and source book.1994.

[52] Tsou S C S, Hong T L .Compositional analysis of vegetable soybean by near infrared reflectance spectroscopy. Journal Of The Chinese Agricultural Chemical Society.1991;29: 26-32.

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