



American Journal of Agricultural Research (ISSN:2475-2002)



Anthocyanin contains in *Cratoxylum formosum*

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ABSTRACT

Cratoxylum formosum is an indigenous Thai vegetable, mostly grown in the North-East of Thailand. It has been reported that the leaf extract showed strongly antioxidant and antimutagenic properties when compared with 108 species of indigenous Thai plants. The point toward of this do research was analyzed anthocyanin inhibit in *Cratoxylum formosum*. The means was assessment in dissimilarity exaction solutions (water, acetone, ethanol and methanol) and divergence era (0 minutes, 30 minutes and 60 minutes). The scrutinize chemically was weighed samples 5 g with modification exaction solutions and divergence era afterward absorbance samples at 535 nm by spectrophotometer. The fallout create that at 0 minutes in diversity exaction solutions (water, acetone, ethanol and methanol) were 909.136±75.010, 737.743±734.871, 704.216±2.313 and 825.006±14.226 mg/L respectively. At 30 minutes in modification exaction solutions (water, acetone, ethanol and methanol) were 873.886±8.626, 788.503±17.094, 720.98±30.786 and 758.686±37.772 mg/L correspondingly and to finish period at 60 minutes in divergence exaction solutions (water, acetone, ethanol and methanol) were 903.96±75, 764.53±49.984, 735.236±45.783 and 824.38±14.718 mg/L respectively. The highest anthocyanin in *Cratoxylum formosum* was exaction with water at 0 minutes (909.136±75.010 mg/L). *Cratoxylum formosum* is a local Thai vegetable, regularly developed in the North-East of Thailand. It has been reported that the sheet take out showed formidably anthocyanin properties Thai plants.

Keywords: Anthocyanin, *Cratoxylum formosum*. and exaction solutions

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How to cite this article:

Theeranat Suwanaruang. Anthocyanin contains in *Cratoxylum formosum*. American Journal of Agricultural Research, 2017, 2:14.

eSciencePublisher®

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Website: <http://escipub.com/>

Introduction

Cratoxylum formosum is extensively strewn in the stiling constituency of Southeast Asia. Its trees are universally second-hand as a deputy for "Kuding Tea" in Yunnan county of China and its immediate area in Vietnam. *Cratoxylum formosum* is an indigenous Thai vegetable, by and generously proportioned full-grown in the North-East of Thailand. However, the chemistry and pharmacology of the trees be inflicted with been consequently considerably not studied. As a persistence of our leisure pursuit in discovering new agents for the remedy of aging-associated diseases from native foodstuffs (Y. relish et al, 2013; L.J. Wang et al, 2014. and Juan Xiong et al 2014.) Anthocyanins, are extensively disseminated in fruits, beans, cereals, vegetables and they are liable for a large amount of the red, blue, and purple flag in fruits, vegetables, and ornate crops. (Zi-Feng Zhang et al, 2009) Anthocyanins are exceedingly spectacular stand pigments with loads of biological activities. However, for the reason that of their amply knee-jerk nature, anthocyanins are unstable. (Tuo Zhang et al, 2014) They are glycosides of polyhydroxy and polymethoxy derivatives of 2-phenylbenzopyrylium or flavylum salts. Anthocyanins (in Greek anthos means flower, and kyanos means blue) are the more significant plant pigments visible toward the human eye. They live under the widespread class of phenolic compounds collectively named flavonoids (Fig. 1).

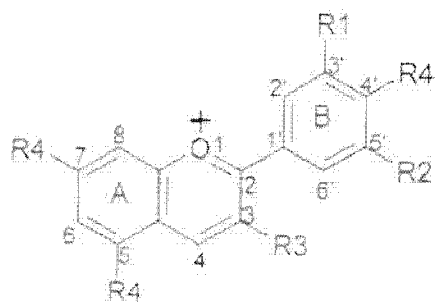


Fig. 1. The flavylum cation. R1 and R2 are H,

OH, or OCH_3 ; R3 is a glycosyl or H; and R4 is OH or a glycosyl. (Jin-Ming Kong et al, 2003)

Anthocyanins, members of the flavonoid group of phytochemicals, are recognised to play an important role in the enhancement of an array of bioactivities in animals, including improving vision, antioxidative activities and anticancer activities. The pigment anthocyanin is widely distributed in the plant kingdom and is well known to be responsible for the red, blue, and violet colours in flowers and fruits of some plants. (Haruna Kamiya et al, 2014) and anthocyanin-enriched (colored) foods include reduced risk of coronary heart disease. (Chandrasekhar Jampani, Aduja Naik, K.S.M.S. Raghavarao.2014)

The purpose of this study was analyzed anthocyanin confine in *Cratoxylum formosum* at Kalasin province, Thailand.

Materials and Methods

The compound psychoanalysis was weighed samples were 5 g and to douse samples with variance exaction (water, acetone, ethanol and methanol) and distinction era (0 minutes, 30 minutes and 60 minutes). 30 ml in that case absorbance samples at 535 nm by spectrophotometer (S. Aubert, I.N.R.A. 1970).

Total Anthocyanin (mg/L) = (Abs Sample-Abs Rgt. Blank) x 470

Results and Discussion

The consequences initiate that at 0 minutes in change exaction solutions (water, acetone, ethanol and methanol) were 909.136 ± 75.010 , 737.743 ± 734.871 , 704.216 ± 2.313 and 825.006 ± 14.226 mg/L respectively. At 30 minutes in

alteration exaction solutions (water, acetone, ethanol and methanol) were 873.886 ± 8.626 , 788.503 ± 17.094 , 720.98 ± 30.786 and 758.686 ± 37.772 mg/L correspondingly and after all epoch at 60 minutes in variance exaction solutions (water, acetone, ethanol and methanol) were 903.96 ± 75 , 764.53 ± 49.984 , 735.236 ± 45.783 and 824.38 ± 14.718 mg/L respectively.

Fresh shoots and young leaves of this plant are traditionally consumed in Thailand. It has been reported that the leaf extract showed strongly antioxidant and antimutagenic properties. Health benefits of *C. formosum* include applying the leaf to the skin through heal a wound and consuming the flower through remedy a cough. *formosum* grows in groves and can withstand barren conditions. *Cratogeomys formosum* is an indigenous Thai vegetable, mostly grown in the North-East of Thailand.

Anthocyanins are normally obtained by extraction from plants. The extraction methods currently employed are to use methanol, ethanol, acetone, water or mixtures as solvents. However, the stability of these anthocyanins are easily affected by structural modifications with hydroxyl, methoxyl, glycosyl, and especially acyl groups and by environmental factors such as temperature and light (Gongjian Fan et al., 2008).

Conclusion

The top anthocyanin in *Cratogeomys formosum* was exaction with fill with tears at 0 minutes (909.136 ± 75.010 mg/L). The buck anthocyanin in *Cratogeomys formosum* was was exaction with etanol at 0 minutes (704.216 ± 2.313 mg/l), by means of stream exaction was supreme anthocyanin at 0 minutes (909.136 ± 75.010 mg/l), by acetone exaction was chief anthocyanin at

30 minutes (788.503 ± 17.094 mg/L), via ethanol exaction was main anthocyanin at 60 minutes (735.236 ± 45.783 mg/L) and by means of methanol exaction was top at 0 minutes. (825.006 ± 14.226 mg/L).

References

- [1] Chandrasekhar Jampani, Aduja Naik, K.S.M.S. Raghavarao.(2014) Purification of anthocyanins from jamun (*Syzygium cumini* L.) employing adsorption Separation and Purification Technology Volume 125, Pages 170–178.
- [2] Gongjian Fan, Yongbin Han, Zhenxin Gu and Feirong Gu (2008) Composition and colour stability of anthocyanins extracted from fermented purple sweet potato culture LWT - Food Science and Technology Volume 41, Issue 8, November, Pages 1412–1416
- [3] Haruna Kamiya, Emiko Yanase Shin-ichi Nakatsuka (2014) Novel oxidation products of cyanidin 3-O-glucoside with 2,2'-azobis-(2,4-dimethyl)valeronitrile and evaluation of anthocyanin content and its oxidation in black rice Food Chemistry Volume 155, Pages 221–226.
- [4] JuanXiong Xin-HuaLiuVan-BinhBuiZhi-LaiHong-Li-JunWangYunZhao HuiFan Guo-XunYangjin-FengHu Fitoterapia (2014) Phenolic constituents from the leaves of *Cratogeomys formosum* ssp. *pruniflorum* EpubVolume 94, April, Pages 114-119.
- [5] Jin-Ming Kong, Lian-Sai Chia^a, Ngoh-Khang Goh, Tet-Fatt Chia and R. Brouillard (2003) Analysis and biological activities of anthocyanins Phytochemistry Volume 64, Issue 5, November 2003, Pages 923–933.
- [6] K. Nakahara, G. Trakoontivakorn, N.S. Alzoreky, H. Ono, M. Onishi-Kameyama, M. Yoshida (2002) Antimutagenicity of some edible Thai plants, and a bioactive carbazole alkaloid, mahanine, isolated from *Micromelum minutum* Journal of Agricultural and Food Chemistry, 50, pp. 4796-4802
- [7] PitchaonMaisuthisakul^a RungnapharPongsawatmanit^a Michael H.Gordon^b (2007) Characterization of the phytochemicals and antioxidant properties of extracts from Teaw (*Cratogeomys formosum* Dyer) Food Chemistry Volume 100, Issue 4, , Pages 1620-1629
- [8] Y. Tang, Y. Fu, J. Xiong, M. Li, G.-L. Ma, G.-X. Yang (2013) Casuarinines A-J, lycodine-type alkaloids from *Lycopodium casuarinoides*. J Nat Prod, 76, pp. 1475-1484.

- [9] Tuo Zhang, Chenyan Lv, Lingli Chen, Guangling Bai, Guanghua Zhao, Chuanshan Xu. (2014) Encapsulation of anthocyanin molecules within a ferritin nanocage increases their stability and cell uptake efficiency *Food Research International* Volume 62, August, Pages 183–192.
- [10] L.-J. Wang, J. Xiong, S.-T. Liu, X.-H. Liu, J.-F. (2014) Hu Sesquiterpenoids from *Chloranthus henryi* and their anti-neuroinflammatory activities *Chem Biodivers*, 10.1002/cbdv.201300283 (in press)
- [11] Zi-Feng Zhang, Shao-Hua Fan, Yuan-Lin Zheng, Jun Lu, Dong-Mei Wu*, Qun Shan and Bin Hu (2009) Purple sweet potato color attenuates oxidative stress and inflammatory response induced by D-galactose in mouse liver *Food and Chemical Toxicology* Volume 47, Issue 2, February, Pages 496–501

