

ASSOCIATED ESTRADIOL LEVEL WITH RED FRUIT (*Pandanus conoideus*) IN MENOPAUSE WOMEN ETHNIC MELANESIA AND ETHNIC MONGOLOID IN PAPUA INDONESIA

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ABSTRACT

Introduction: Although the health benefits of Red Fruit (*Pandanus conoideus*) has been reported to inhibit tumor growth and kill cancer cells, provide anti-inflammatory activity and increase immune system, and believed to treat degenerative diseases, but its potential effect as non-prescribed therapy to menopause women has not been established.

Objectives: The primary objective of this study is to describe the clinical effects of Red Fruit consumption to menopause women, primarily to the estrogen level.

Methods: This is a cross-sectional study comparing menopause Melanesian women, a group with history of Red Fruit consumption as their daily diet, to menopause Mongoloid women, a group without long history of Red Fruit consumption. For comparison, serum estradiol level and body mass index (BMI) were collected for both groups. Subjects with metabolic disorders such as Diabetes Mellitus are excluded from the study as these medical condition could affect the serum estradiol level.

Results: There is no significant difference on BMI between the two groups but the results of serum estradiol level showed the Melanesia group is higher compared to the Mongoloid group.

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Conclusion: The association of estradiol level and Red fruit consumption could not be concluded yet but Red fruit consumption still can help managing the symptoms of menopause due to high content of antioxidant.

INTRODUCTION

Estrogen, the primary female sex hormone, is a class of steroid hormones that includes estradiol, estrone, and estriol. Estrogens are synthesised from the hormone testosterone by the enzyme aromatase. Both women and men produce estrogens but women have more of the aromatase enzyme, so they produce more estrogens than men.¹

Menopause is a natural part of ageing that results from reduced secretion of the ovarian hormones estrogen and progesterone. The significant drop of estrogen and progesterone levels results in symptoms such as hot flashes, mood swings, decreased sex drive, and vaginal dryness. Low estrogen level also increases risk of osteoporosis. Individual experience vary and some women seek medical advice for the management of symptoms. The treatment of symptoms associated with menopause consists of hormonal, non hormonal, and non prescribed therapy. Although hormonal therapy is the most effective treatment, studies reported that hormonal therapy on menopause women produces significant increase in the incidence of heart disease, stroke, breast cancer, and memory loss.^{1,2}

Indonesia is a nation in South East Asia with diverse ethnic groups. Generally, Indonesia consists of Malay ethnic groups in the western and middle parts, and Melanesia in the eastern. The Malay ethnic group is a Mongoloid race whereas Melanesia is Negroid.

The Red fruit, or *Pandanus conoideus*, is an indigenous plant from Papua, Indonesia and commonly used as food source by Melanesian, the inhabitants of the island. Extract oil of *P. conoideus* has been reported as safe for human consumption and inhibit tumor growth and kill cancer cells, provide anti-inflammatory activity and increase immune system, and reduce blood sugar of diabetic rats (*Rattus norvegicus*). This article aims to show the profile of menopause women of ethnic Melanesia and Mongoloid and the potential effect of Red fruit as the novel non-prescribed therapy for menopause.³⁻⁵

METHODS

This is a cross-sectional study with total samples of 20 women grouped into ethnic Melanesia as the case

group (8 women) and Mongoloid as the control group (12 women). Participants were given questionnaire about daily diet, onset and symptoms of menopause, and metabolic disorder. For comparison, estrogen level and body mass index (BMI) were collected for both groups. Serum estradiol level were analysed to represent the amount of estrogen. The test was conducted at accredited laboratory in Indonesia. Participants with metabolic disorders such as Diabetes Mellitus or treated with hormone replacement therapy were excluded from the study. No intervention was applied on the consumption of Red Fruit. The amount of the Red Fruit consumed was not measured.

RESULT AND DISCUSSION

The average age of Melanesia group is 51,4 and Mongoloid group is 52,1. The average Body Mass Index (BMI) of Melanesia group is 27,1 and Mongoloid group is 26,2. There is no significant difference on BMI between the two groups. The average estradiol level of Melanesia group is 90,4 pg/ml and Mongoloid group is 17,5 pg/ml. Serum estradiol level of Melanesia group is higher compared to Mongoloid group. Estradiol is the predominant form of estrogen produced in the ovaries and decreases in menopause to less than 40 pg/ml.

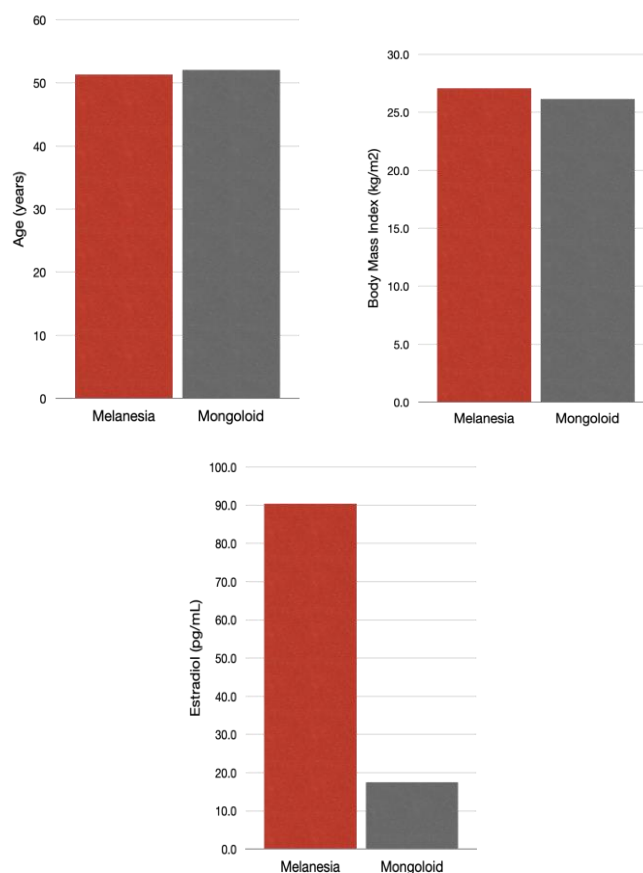


Figure 1. Comparison between Melanesia and Mongoloid group based on (a) age, (b) body mass index, and (c) estradiol.

Red fruit commonly consumed by Melanesian, the inhabitants of Papua where the fruit is indigenous, as part of their diet and also as traditional medicine. Red fruit was reported to contain high natural antioxidant component, such as α -carotenoids, β -carotenoids, β -cryptoxanthin, and α -tocopherol, and unsaturated fatty acids, particularly oleic, linoleic, linolenic, and palmitoleic, but no studies yet reported containment of phytoestrogen or other substance that could affect the estrogen level.^{3,6}

CONCLUSIONS

In our study, the serum estradiol level of Melanesian women is higher compared to Mongoloid women. The association between serum estradiol level and Red fruit consumption could not be concluded yet since this finding could be affected by other factors. As for now, the consumption of Red fruit still can help managing the symptoms of menopause due to the high content of antioxidant.

We hope to further examine the potential of Red fruit on menopause women by making intervention on the amount of Red fruit consumed and analyzing the association between Red fruit consumption and estrogen level.

REFERENCES

1. Frick KM. Estrogen. Encyclopedia of Human

- Development vol. 1. SAGE Reference 2006:473-474.
2. Nelson HD. Menopause. The Lancet 2008 Mar;371(9614):760-70.
 3. Sarungallo ZL, Murtiningrum, Santoso B, Roreng MK, Latumahina RMM. Nutrient content of three clones of red fruit (*Pandanus conoideus*) during the maturity development. IFRJ 2016;23(3):1217-1225
 4. Winarto, Madiyan M, Anisah N. The effect of *Pandanus conoideus* Lam. oil on pancreatic β -cell and glibenclamide hypoglycemic effect of diabetic Wistar rats. Berkala Ilmu Kedokteran 2009;41(1):11-19.
 5. Mun'im A, Andrajati R, Susilowati H. Uji hambatan tumorigenesis sari buah merah (*Pandanus conoideus* Lamk.) terhadap tikus putih betina yang diinduksi 7, 12 dimetilbenz(a)antrasene (DMBA). Majalah Ilmu Kefarmasian 2006;3:153-161. Bahasa Indonesia.
 6. Falk RT, Gentschein E, Stanczyk FZ, Garcia-closas M, Figueroa JD, Ioffe OB, et al. Sex steroid hormone levels in breast adipose tissue and serum in postmenopausal women. Breast Cancer Res Treat 2012 01;131(1):287-94.
 7. Victorino VJ, Panis C, Campos FC, Cayres RC, Colado-simão ,A.N., Oliveira SR, et al. Decreased oxidant profile and increased antioxidant capacity in naturally postmenopausal women. Age 2013 08;35(4):1411-21.
