

DEVELOPMENT OF GREEN TEA, OOLONG TEA,
AND BLACK TEA FROM THE PHILIPPINES TO THE U.S.A.

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**DEVELOPMENT OF GREEN TEA, OOLONG TEA AND BLACK TEA FROM
*HEDYOTIS DIFFUSA***

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MENGABANG TELIPOT

DECLARATION

I hereby declare that this research project is based on my original work except the quotation and summaries, which have been duly acknowledgement.

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ABSTRACT

This study was conducted to evaluate the proximate analysis and the antioxidant activity from the herbs of *Hedyotis diffusa* which has been processed to be green, oolong and black tea. Green tea resulted with the highest ash content as compared to oolong and black tea. It showed no significant ($p < 0.005$) difference to oolong and black tea. Again, green tea obtained significant ($p < 0.005$) higher among oolong and black tea. For fiber analysis, oolong tea had the greatest result. Meaning to say that, oolong tea was indicated with the highest fiber content in the tea itself. And it was no significantly ($p < 0.005$) different. Atomic absorption spectrophotometer (AAS) was used to determine the mineral content in these three types of teas. From the analysis, magnesium was rich in these three different types of tea. Whereas for copper, it was the lowest mineral content in these sample tea. B-carotene bleaching method was used to determine the antioxidant activity in tea. Antioxidant activity as assessed with the β -carotene bleaching method decreased in the order: BHT > green > oolong > black. All tea samples and BHT showed significant ($p < 0.005$) difference. The acceptability of all teas was determined using sensory evaluation. The hedonic scale was used in this sensory test. Results showed that black tea's color was the most accepted among green and black tea. Black tea was significantly ($p < 0.005$) different compared to green and oolong tea as well. For the attribute of aroma, black tea was the most accepted by panels. Whereas green tea was least preferred by panel. There was no significant ($p < 0.005$) different among the tea. For bitterness attribute, oolong tea was obtained the highest result as compared to green and black tea. There were no significant ($p < 0.005$) difference. Again, black tea obtained the highest result in taste and overall acceptance. There were no significantly ($p < 0.005$) different. The result of this study strongly showed that all the herbal tea extract potentially has an active and could be used as healthy and nourishing beverages.

PERBANDINGAN PROKSIMAT ANALISIS DAN AKTIVITI ANTIOKSIDAN DALAM TEH HIJAU, TEH OOLONG DAN TEH HITAM SERTA TAHAP PENERIMAANNYA

ABSTRAK

Kajian ini dijalankan untuk menentukan proksimat analisis dan aktiviti antioksidan daripada *Hedyotis diffusa* yang telah diproses menjadi teh hijau, teh oolong dan teh hitam. Teh hijau merupakan sampel yang paling tinggi kandungan abu antara teh oolong dan teh hitam. Keputusan menunjukkan tidak terdapat perbezaan signifikan ($p < 0.005$). Sekali lagi, teh hijau merupakan perbezaan signifikan ($p < 0.005$) yang paling tinggi antara kesemua sampel teh. Untuk gentian analisis, oolong teh mendapat keputusan yang paling tinggi. Teh oolong tidak terdapat sebarang perbezaan signifikan ($p < 0.005$). Atomic absorption spectrophotometer (AAS) digunakan untuk menganalisis kandungan mineral dalam teh. Melalui analisis, ketiga-tiga jenis teh mempunyai kandungan magnesium yang paling tinggi. Sebaliknya, kuprum merupakan jumlah kandungan mineral yang paling kurang terdapat dalam teh. Kaedah *β -carotene bleaching* telah digunakan untuk menentukan aktiviti antioksidan dalam teh. Darjah aktiviti antioksidan menurun mengikut turutan: BHT > hijau > oolong > hitam. Kesemua sampel teh dan BHT menunjukkan perbezaan signifikan ($p < 0.005$). Tahap penerimaan kesemua teh herbal ditentukan melalui penilaian sensori. Skala hedonik telah digunakan dalam ujian sensori tersebut. Teh hitam dalam atribut warna menunjukkan keputusan yang paling banyak diterima oleh panel berbanding teh hijau dan teh oolong. Selain itu, teh hitam mempunyai perbezaan signifikan ($p < 0.005$). Untuk atribut aroma, teh hitam adalah paling diterima oleh panel. Sebaliknya, teh hijau paling jarang disukai oleh panel. Tidak terdapat sebarang perbezaan signifikan ($p < 0.005$) antara teh hijau, teh hitam dan teh oolong. Teh herba yang paling diterima bagi atribut keamatan rasa pahit adalah teh oolong dan tidak terdapat sebarang perbezaan yang signifikan ($p < 0.005$). Sekali lagi, teh hitam mendapat keputusan yang paling tinggi dalam atribut rasa dan penerimaan keseluruhan. Kesemua teh tidak terdapat sebarang signifikan ($p < 0.005$) berbeza. Hasil kajian ini jelas menunjukkan bahawa semua ekstrak teh herba berpotensi mempunyai antiosidan yang aktif dan boleh digunakan semudah minuman kesihatan.