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Demikian surat tugas ini, atas perhatian dan kerjasamanya kami ucapkan terima kasih.

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Dekan Fakultas Farmasi



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Characterization of Physical and Chemical Changes of Black Garlic Fermented

(*Allium sativum* L.).

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Garlic (*Allium sativum* L.) is commonly used as basic ingredient in Indonesia cuisine and it is also commonly used as a traditional medicine. The strong smell of garlic makes some people dislike garlic, therefore some people ferment garlic to produce black garlic. Black garlic has a non-pungent aroma and sweeter taste, due to the presence of the Maillard reaction and caramelization during the fermentation process. Our hypothesis was there are some physical and chemical changes in fresh garlic when processed into black garlic. Black garlic was made by heated fresh garlic at temperature 70°-80°C (warm) for 15 days. The physical characterization and phytochemical screening was evaluated to see physical and chemical changes on black garlic. Physical changes were evaluated every 5 days for 15 days. Physical changes in color to brown (day 5) then become dark / black (on days 10 to day 15). During the process there was texture change from hard texture to soft, aroma and taste is better for consume. The ethanol soluble extract content of black garlic was 18% while the water soluble extract content was 22%. From the phytochemical screening, black garlic contains flavonoids, alkaloids, saponins, tannins, triterpenoids and steroids. Physical and chemical changes occur in some compounds in black garlic caused by a maillard reaction and caused changes in bioactive compounds in black garlic

Keywords : Black garlic, Characterization , Phytochemical Screening , Maillard reaction

Characterization of Physical and Chemical Changes of Black Garlic Fermented (*Allium sativum* L.)

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INTRODUCTION

Garlic (*Allium sativum* L.) is commonly used as basic ingredient in Indonesia cuisine and it is also commonly used as a traditional medicine. The strong smell of garlic makes some people dislike garlic, therefore some people ferment garlic to produce black garlic. Black garlic has a non-pungent aroma and sweeter taste, due to the presence of the Maillard reaction and caramelization during the fermentation process.

METHODS



Screening Phytochemistry	Fresh Garlic	Black Garlic
Flavonoid	+	+
Saponin	-	+
Tannin	+	+
Quinon	-	-
Alkaloid	+	+
Steroid/ Triterpenoid	+	

CONCLUSION

The change in garlic to black garlic is caused by a Maillard reaction during the fermentation process. The Maillard reaction is a non-enzymatic browning reaction that occurs due to a reaction between reducing sugars and free amine groups on amino acids or proteins.

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RESULTS

