

## PERUBAHAN KARAKTERISTIK FISIK-KIMIA DAN KOMPONEN RASA PETAI (*Parkia speciosa* Hassk.) SELAMA PENGGORENGAN DENGAN METODE *DEEP-FAT FRYING*

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### INTISARI

Petai (*Parkia speciosa* Hassk.) merupakan tanaman tahunan tropika dari famili *Fabaceae*, subfamili *Mimosoideae*. Petai mempunyai cita-rasa pahit dan unik *Shiitake mushroom-like* (rasa umami). Petai sering dikonsumsi sebagai lalapan maupun diolah terlebih dahulu, salah satunya dengan cara digoreng. Penggorengan dapat mempengaruhi komponen gizi dan cita rasa yang terkandung dalam bahan pangan. Penelitian ini bertujuan untuk mengetahui dan mempelajari pengaruh variasi waktu penggorengan *deep-fat frying* terhadap karakteristik fisik-kimia dan komponen rasa petai. Penggorengan dilakukan pada suhu 160°C dengan variasi waktu penggorengan 0, 4, 8, dan 12 menit.

Hasil penelitian menunjukkan bahwa seiring dengan bertambahnya waktu penggorengan menyebabkan terjadinya penurunan pada bobot, ukuran dimensi, kadar air, abu, protein, karbohidrat, dan terjadi peningkatan pada nilai *hardness* yang ditandai dengan tekstur yang semakin keras, warna menjadi lebih gelap atau kuning-kecoklatan, dan kadar lemak. Asam lemak yang dominan pada petai segar adalah asam linoleat, palmitat, dan eikosapentaenoat. Selama penggorengan terjadi penurunan nilai % relatif area asam linoleat dan eikosapentaenoat. Sedangkan, peningkatan terjadi pada asam palmitat diduga berasal dari minyak goreng yang digunakan.

Komponen non-volatil yang berpotensi terhadap pembentukan rasa pada petai segar antara lain asam organik (asam sitrat, suksinat, dan malat) yang memberikan sensasi sedikit rasa asam dan pahit, dan mineral (K>P>Mg>Ca>Na) yang memberikan sensasi rasa asin dan menimbulkan *aftertaste* pahit metalik, asam amino bebas (asam glutamat, histidin, dan metionin) yang memberikan sensasi rasa umami dan pahit, serta 5'-nukleotida (5'-GMP dan 5'-IMP) yang memberikan sensasi rasa gurih atau umami. Intensitas rasa umami dihitung dengan rumus KEU (Konsentrasi Ekuivalen Umami). Berdasarkan perhitungan *Taste Activity Value* (TAV) tiap komponen rasa dan Konsentrasi Ekuivalen Umami (KEU), sensasi rasa pahit cukup dominan pada petai segar maupun goreng selain rasa umami. Komponen rasa dan nilai KEU mengalami penurunan seiring dengan lamanya waktu penggorengan. Tinggi atau rendahnya penurunan kandungan gizi dan komponen rasa suatu bahan pangan akibat pemasakan tergantung dari jenis bahan pangan dan lamanya proses pemasakan.

**Kata kunci:** Petai (*Parkia speciosa* Hassk.), karakteristik fisik-kimia, komponen rasa, konsentrasi ekuivalen umami, *deep-fat frying*

## CHANGES IN THE PHYSICOCHEMICAL CHARACTERISTICS AND TASTE COMPONENTS OF STINKY BEANS (*Parkia speciosa* Hassk.) DURING DEEP-FAT FRYING

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### ABSTRACT

Stinky beans (*Parkia speciosa* Hassk.) is a genus of tropical annual plants in the pea family, *Fabaceae*, subfamily *Mimosoideae*. *P. speciosa* seeds have a bitter taste and unique flavor Shiitake mushroom-like (umami taste), and It can be eaten raw as "lalapan" (an Indonesia word for uncooked) or processed, one of them by frying. Frying can affect the nutrient and flavor contents of foods fried. Purpose of this research was to determine the effect of frying time on the physicochemical characteristics and taste components of stinky beans during deep-fat frying. Frying was conducted at 160°C for 0, 4, 8, and 12 minutes.

The results showed that with increased in frying time caused a weight, length, width, thickness, moisture content, ash, protein, and carbohydrate contents decreased. Meanwhile, hardness value, the formation of a dark brown-colored, and fat content increased. The dominant fatty acids in raw stinky beans were linoleic, palmitic, and eicosapentaenoic acids. During frying increased the relative % area value of palmitic acid, presumably derived from cooking oil used, whereas linoleic and eicosapentaenoic acids decreased with increased in frying time.

The non-volatile taste components which potential to flavor of stinky beans were organic acids (citric, succinic, and malic acids) providing sour and bitter sensation, minerals (K>P>Mg>Ca>Na) providing a salty taste sensation and also giving rise undesirable after tastes, such as bitter and metallic, free amino acids (glutamic acid, histidine, and methionine) which were affecting the taste of umami and bitter, and 5'-nucleotides (5'-GMP and 5'-IMP) providing a savory or umami taste sensation. The intensity of umami taste was calculated by Equivalent Umami Concentration (EUC). Based on the calculation of Taste Activity Value (TAV) of each taste components and Equivalent Umami Concentration (EUC), the dominant taste components of both raw and fried stinky beans were bitter taste sensation, besides the umami taste. Almost the taste components and EUC values of stinky beans decreased with increased in frying time. High or low nutrient and taste components levels decrease due to cooking depending on the type of food and longer the cooking process.

**Keywords:** Stinky beans (*Parkia speciosa* Hassk.), physicochemical characteristics, taste components, equivalent umami concentration, deep-fat frying