

**ANALISIS KINETIKA PERUBAHAN KUALITAS EDAMAME
(*Glycine max.* L. Merrill) SELAMA PENGERINGAN MENGGUNAKAN
FREEZE DRYER DENGAN PERLAKUAN BLANCHING**

INTISARI

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Edamame (*Glycine max.* L. Merrill) dikonsumsi karena memiliki rasa gurih dan kandungan gizi tinggi. Edamame dapat dikeringkan dan dikonsumsi sebagai snack melalui metode pengeringan yang dapat menjaga kandungan gizinya, yaitu *freeze drying*. Informasi pengeringan edamame dengan metode ini dihubungkan dengan perlakuan *blanching* masih sedikit. Penelitian dilakukan untuk menentukan kinetika perubahan kualitas edamame selama *freeze drying* dan menentukan pengaruh *blanching* terhadap kualitas edamame kering beku serta kondisi *blanching* terbaik. Alat utama yang digunakan adalah *freeze dryer* berkapasitas 1,5 kg dengan suhu pendingin -18°C dan tekanan -76 cmHg .

Pengamatan kinetika dilakukan terhadap edamame segar dengan kadar air awal 60-70% yang telah melalui *steam blanching* selama 9 menit. Parameter kadar air, dimensi, warna, dan tekstur diukur pada jam ke-0, ke-12, ke-18, ke-24, ke-30, dan ke-36. Penurunan kadar air sebesar 6,28% per jam dengan nilai k kadar air 0,1, dimensi 0,0512, volume 5,1617, L^* -0,1259, a^* 0,00007, b^* -0,201, dan tekstur -70,802.

Perlakuan *steam blanching* 100°C dan *water blanching* 90°C dilakukan terhadap edamame segar sebelum *freeze drying* masing-masing selama 3, 9, dan 15 menit. Edamame segar yang dikeringkan secara *freeze drying* sebagai kontrol. Pengaruh *blanching* terhadap warna dan kekerasan edamame kering beku tidak signifikan. Perbedaan metode *blanching* berpengaruh signifikan terhadap pengerutan serta perbedaan perlakuan *blanching* berpengaruh signifikan terhadap kesukaan konsumen dan kadar protein maupun klorofil edamame kering beku. Kualitas edamame kering beku terbaik dihasilkan oleh perlakuan *water blanching* selama 15 menit.

Kata kunci : edamame, *freeze drying*, kinetika, *blanching*

**KINETIC ANALYSIS OF EDAMAME (*Glycine max.* L. Merrill)
QUALITY CHANGES DURING DRYING USING A FREEZE DRYER
WITH BLANCHING TREATMENT**

ABSTRACT

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Edamame (*Glycine max.* L. Merrill) has been consumed due to its savory taste and high nutrient content. Edamame can be dried and consumed as a snack through the drying process which is able retaining nutrition loss, that is freeze drying. There were still least information about freeze drying of blanched edamame. Therefore, the objective of this study was to investigate the edamame's quality reduction kinetics during freeze drying and to observe blanching effect on freeze-dried edamame then determine the best blanching condition. Freeze dryer with 1,5 kg capacity was used with freezing temperature at -18°C and pressure at -76 cmHg.

Fresh edamame with initial water content of 60-70% was steam-blanching to 9 minutes before drying. Its parameters of moisture content, dimension, colour, and texture was measured at 0, 12, 18, 24, 30, and 36 hours. Moisture content loss per hour 6,28% with kinetic slope of moisture content was 0,1, dimension was 0,0512, volume was 5,1617, L* was -0,1259, a* was 0,00007, b* was -0,201, dan texture was -70,802.

Steam blanching at 100°C and water blanching at 90°C was used for pre-treatment, each for 3, 9, and 15 minutes. Freeze-dried fresh edamame was used for control. Blanching effect was not significant on edamame's colour and hardness. Different blanching method effected significantly on shrinkage and different blanching condition effected significantly on consumer liking and both protein and chlorophyll contain. The best product's quality was freeze-dried edamame after 15 minutes of water blanching.

Keyword : Edamame, freeze drying, kinetics, blanching