

Uji Alergenitas Varian Umbi Porang (*Amorphophallus oncophyllus* Hook.) dengan metode ELISA Ig-E

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ABSTRAK

Porang (*Amorphophallus oncophyllus* Hook) merupakan tanaman penghasil umbi yang saat ini sedang digalakkan untuk memenuhi kebutuhan ekspor dari Jawa Timur dan sebagai bahan baku beberapa industri di dalam negeri. Prospek Porang sebagai makanan kesehatan cukup menarik, namun masih diperlukan beberapa kajian mengingat umbi porang berpotensi menimbulkan alergi pada sebagian orang. Penyebab alergi Porang diduga berasal dari kandungan kristal kalsium oksalat pada umbi porang yang menimbulkan rasa gatal atau panas di dalam mulut. Namun alergi pada makanan biasanya berupa protein yang tidak mengalami perubahan selama proses pencernaan. Diketahui terdapat empat tipe kristal kalsium oksalat yaitu druse, rafida, prisma dan pasir. Berbagai protein berperan dalam pembentukan kristal kalsium oksalat (protein matriks) yang meliputi Asp-rich acidic proteins dan Ser-rich, yang mempunyai kemampuan yang sangat kuat untuk mengikat kalsium. Dari hal tersebut substansi alergen pada umbi porang adalah protein matriks pada kristal bukan kristal kalsium oksalat. Alergen pada makanan biasanya berupa protein yang tidak mengalami perubahan selama proses pencernaan dan pengolahan makanan.

Pada penelitian awal Uji Alergenitas ini, telah dilakukan uji alergenitas pada berbagai varian porang mentah (var. Sumber Baru-Jember ; var. Klangon, Saradan-Madiun dan var. Sumber Bendo, Saradan-Madiun) dengan ELISA IgE dari serum tikus putih (*Rattus* sp) yang sebelumnya mendapatkan pencetakan tepung umbi porang mentah. Hasil analisis SDS-PAGE menunjukkan bahwa Porang Mentah maupun Porang Olahan memiliki profil pita protein yang relatif sama (18 dan 15 kDa). Pita protein dari kelompok Porang Mentah terlihat lebih tebal bila dibandingkan pita pada kelompok Porang Olahan. Ketebalan pita protein (berat molekul 15 kDa) pada kelompok Porang turun sekitar 25 sampai 50 % apabila Porang tersebut diolah dengan pengukusan (steamed). Hal ini menunjukkan bahwa pengolahan Porang dengan pengukusan efektif untuk mengurangi potensi alergenitas untuk konsumsi porang. Hasil Uji Alergenitas dengan ELISA Ig-E ini menunjukkan bahwa potensi alergenitas umbi porang secara berturut-turut adalah Porang var. Sumber Baru (Jember) > Porang var. Klangon - Saradan (Madiun) > Porang var. Sumber Bendo - Saradan (Madiun).

Kata kunci: Porang, Alergenitas, ELISA, Ig-E.

ABSTRACT

Porang (*Amorphophallus oncophyllus* Hook.), a tuber plant, is intensively explored for export commodities from East Java and as a raw food stuff material for domestic industry. The prospects of Porang tubers as the healthy food is interesting, however some studies are needed for their allergy effects. It was thought that the allergy effects of Porang are caused by the composition of Calcium Oxalate crystal that leads the itching and irritation in the mouth. On the other hands, the food allergy is usually caused by unchanged protein during food digesting. Some proteins have been known that play a role in Calcium Oxalate crystal (Matrix proteins) formation, they are: Asp-rich and Ser-rich acidic proteins that are tightly bound to Calcium. So, substantially the allergen of Porang tuber is from the matrix protein, not from its crystal. The allergen in the food is usually a protein that is not change during the food digestion.

In this study, it has been done the allergic test of some Porang tuber variants, namely : Sumber Baru-Jember ; Klangon, Saradan-Madiun and Sumber Bendo, Saradan-Madiun, by ELISA-IgE from rats blood serum that have been orally treated by raw Porang tubers powder before. The SDS-PAGE analysis shows that the proteins bands profiles are similar between raw and steamed Porang tubers (appearance Molecular

Weight: 18 and 15 kDa). But, those raw Porang tubers bands are thicker than the steamed ones. The thickness of those raw Porang tubers decrease from 25 to 50 %, compare to those steamed ones. It means that the steaming of Porang is effective to decrease the potential allergy of Porang for consumptions. The allergic test analysis by ELISA-IgE revealed that the potential allergy of Porang are: Sumber Baru (Jember) > Porang var. Klangon - Saradan (Madiun) > Porang var. Sumber Bendo - Saradan (Madiun), respectively.

Key word: Porang, Alergy, ELISA, Ig-E

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