# OPTIMASI ISOLASI DAN HIDROLISIS PROTEIN ALGA COKLAT *Sargassum* sp.

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## INTISARI

Alga laut merupakan salah satu sumber hayati yang kaya akan senyawa bioaktif. Alga laut salah satu sumber penting makronutrien terutama protein dan lipid, serta mikronutrien seperti vitamin dan mineral bersama dengan serat makanan dan metabolit sekunder seperti polifenol. Eksplorasi potensi peptide aktif belum banyak dilakukan pada alga laut. Penelitian ini bertujuan untuk mengetahui hidrolisat protein *Sargassum* sp. sebagai langkah awal meningkatkan pemanfaatan makroalga. Cara kerja yang dilakukan secara beberapa tahap yaitu pengambilan spesiemen *Sargassum* sp. di zona intertidal Pantai Selatan Gunungkidul, Yogyakarta. Sampel langsung dibawa ke laboratorium dalam kondisi dinginuntuk ekstraksi protein. Sebelumnya sampel diuji proksimat untuk mengetahui kandungan proteinnya. Proses menghasilkan hidrolisat protein dilakukan dengan mengekstrak protein dalam buffer PBS, Tris HCl, dan ekstraksi tanaman. Ekstrak kasar protein dikonfirmasi dengan pengecekan konsentrasi protein dengan uji Bradford serta di*running* pada *gel* acrylamide SDS-PAGE. Ekstrak kasar selanjutnya di digesti dengan trypsin dengan perbandingan 1:40, 1:50 dan 1:60. Pada penelitian ini diperoleh bahwa pelarut buffer yang paling baik digunakan yaitu buffer Tris HCl untuk isolasi *Sargassum* sp. Hal ini dapat mempengaruhi profil protein yang dari hidrolisat protein *Sargassum* sp. dengan menghasilkan presipitat protein yang tinggi daripada jenis buffer yang lain.

Kata kunci: hidrolisat protein, *Sargassum* sp., ekstraksi, presipitasi

# OPTIMIZATION OF PROTEIN ISOLATION AND HYDROLYSIS BROWN ALGAE Sargassum sp.

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## ABSTRACT

Marine algae is a biological source that is rich in bioactive compounds. Marine algae is an important source of macronutrients, especially proteins and lipids, as well as micronutrients such as vitamins and minerals along with dietary fiber and secondary metabolites such as polyphenols. There has not been much exploration of the potential for active peptides in marine algae. This research aims to determine the protein hydrolyzate of Sargassum sp. as a first step to increase the use of macroalgae. The work method is carried out in several stages, namely taking specimens of Sargassum sp. in the intertidal zone of the South Coast of Gunungkidul, Yogyakarta. Samples were immediately taken to the laboratory in cold conditions for protein extraction. Previously, the sample was tested proximately to determine its protein content. The process of producing protein hydrolyzate is carried out by extracting protein in PBS buffer, Tris HCl, and plant extraction. The crude protein extract was confirmed by checking the protein concentration with the Bradford test and running on an SDS-PAGE acrylamide gel. The crude extract was then digested with trypsin in a ratio of 1:40, 1:50 and 1:60. In this study, it was found that the best buffer solvent to use was Tris HCl buffer for the isolation of Sargassum sp. This can affect the protein profile of the Sargassum sp protein hydrolyzate. by producing higher protein precipitates than other types of buffer.

Keywords: hydrolyzate protein, *Sargassum* sp., extraction, and precipitation