Sintesis dan analisis seng proteinat dan besi (II) proteinat dari hasil reaksi seng klorida dan besi (II) klorida dengan protein hasil reaksi kacang kedelai dengan protease = Synthesis and analysis of zinc proteinate and iron (II) proteinate from reaction of zinc chloride and iron (II) chloride with protein from reaction of soybean with protease

Purnama Wulansari Neldy, author

Abstrak

ABSTRAK
Seng dan besi merupakan logam yang diperlukan tubuh dalam jumlah yang sedikit. Akan tetapi, seng dan besi tidak dapat diabsorbsi dengan baik dan pengeluaran kedua logam ini dari tubuh berlangsung cepat. Penggunaan kompleks logam proteinat dapat dimanfaatkan sebagai solusi dalam mempertahankan logam agar dapat lebih baik diabsorbsi dan tidak cepat dikeluarkan dari tubuh. Pada penelitian ini dilakukan sintesis logam proteinat dengan mereaksikan senyawa logam dengan protein hasil hidrolisis enzimatis dengan enzim Pancreatin yang memiliki aktivitas protease dan analisis hasil sintesis logam proteinat. Penelitian ini bertujuan untuk mendapatkan metode sintesis dan kadar yang optimum dari logam proteinat. Logam-proteinat dibuat dengan tiga perbandingan, yaitu (0,8:1), (1:1) dan (1,2:1). Sumber protein yangg digunakan berupa kacang kedelai yang kaya akan protein dan melimpah di Indonesia. Logam yang digunakan adalah seng dan besi. Pada penelitian ini juga terdapat pemanfaatan limbah besi yang melimpah di Indonesia, yaitu untuk membuat larutan logam besi (II) klorida. Didapat hasil sintesis seng proteinat berupa serbuk coklat Pantone 4535 U dan besi (II) proteinat berupa serbuk coklat Pantone 436 C. Metode sintesis yang optimum diperoleh pada perbandingan seng-proteinat dan besi (II)-proteinat (1:1) dikarenakan pada perbandingan tersebut diperoleh rendemen tertinggi, yaitu sebesar 98,33% dan 98,56%. Analisis kadar logam dilakukan menggunakan alat Spektrofotometer Serapan Atom (SSA). Berdasarkan hasil analisis, diperoleh kadar optimum dari hasil sintesis seng-proteinat adalah pada perbandingan logam-proteinat (1:1) dan besi-proteinat (1,2:1) dikarenakan pada perbandingan tersebut diperoleh kadar logam terikat tertinggi, yaitu sebesar 17,8114 mg/g dan 6,6424 mg/g.
<hr>
ABSTRACT
Zinc and iron are metal that are required in smaller quantities in our body. Despite its important role in body, zinc and iron cannot be absorbed well and excreted very quickly from our body. The use of metal proteinate complexes can be used as a solution in maintaining metal so that they can be absorbed better and not quickly excreted from the body. In this research was carried out metal proteinate synthesis by reacting metal compounds with proteins from enzymatic hydrolysis with Pancreatin enzyme which had protease activity and analysis of metal proteinate synthesis. This study aimed to obtain the optimum synthesis method and assay of metal proteinate. Metal-proteinate was made in three comparisons, namely (0.8:1), (1:1) and (1.2:1). The source of protein was soybeans which were rich in protein and abundant in Indonesia. The metals used were zinc and iron. In this study iron waste that abundant in Indonesia was utilized to make a metal solution of iron (II) chloride. The results of zinc proteinate synthesis were in the form of brown Pantone 4535 U powder and iron (II) proteinate synthesis were in the form of brown Pantone 436 C powder.

The optimum synthesis method of logam-proteinate was obtained from zinc-proteinate and iron (II)-proteinate (1:1) that shown from the highest yield, which is 98.33% and 98.56%. Analysis of metal assay was carried out using Atomic Absorption Spectrophotometer (AAS). The result showed that the optimum assay of metal proteinate was obtained from zinc-proteinate (1:1) and iron (II)-proteinate (1.2:1) that shown from the highest metal assay, which is 17.8114% and 6.6424%.