PENGARUH MALTODEKSTRIN DARI PATI UBI JALAR, KENTANG, KIMPUL, DAN TALAS TERHADAP KARAKTERISTIK MIKROENKAPSULAN ASAP CAIR

ROSYDINA GHASSANI
12/333171/TP/10432

ABSTRAK

Indonesia kaya akan jenis tanaman umbi-umbian yang selama ini kurang mendapat tempat di masyarakat, dan memiliki potensi ekonomi yang cukup tinggi. Golongan umbi-umbian mayor secara umum telah banyak diaplikasikan untuk kebutuhan industri seperti ubi kayu untuk produksi tapioka, sedangkan pemanfaatan golongan umbi minor belum banyak digunakan di kalangan industri. Berdasarkan hal itu maka pati perlu dilakukan modifikasi pati agar diperoleh sifat-sifat yang cocok untuk aplikasi tertentu yaitu dengan pembuatan maltodekstrin. Umbi yang digunakan dalam penelitian ini adalah ubi jalar, kentang, kimpul, dan talas. Masing-masing umbi tersebut memiliki kandungan pati yang tinggi sehingga dapat dijadikan maltodekstrin. Setelah menjadi maltodekstrin, dijadikan bahan penyalut komponen bahan aktif yaitu asap cair. Asap cair memiliki kandungan komponen aktif yaitu salah satunya fenol. Fenol mudah mengalami kerusakan dan bersifat volatil. Sehingga asap cair perlu enkapsulan. Tujuan dari penelitian ini adalah mengetahui potensi pati ubi jalar, kentang, kimpul, dan talas sebagai enkapsulan pada mikroenkapsulasi asap cair.

Pada penelitian ini, keempat pati tersebut dihidrolisis dengan waktu 90 menit dan suhu 85^{o}C. Maltodekstrin kemudian dianalisis DE (Dextrose Equivalent) dan kelarutannya. Lalu dilakukan spray drying dengan variasi padatan terlarut redistilat asap cair dan maltodekstrin serta maltodekstrin 1:5. Setelah itu mikrokapsul yang dihasilkan dianalisis karakteristiknya meliputi kadar feno, keberadaan fenol, ukuran partikel, serta analisis morfologinya dan efisiensi mikrokapsul. Hasil penelitian menunjukkan kelarutan dan DE masing-masing maltodekstrin umbi, ubi jalar 97,47%, 7,75; pati kentang 96,28%, 9; pati kimpul 98,84%, 10,15 dan pati talas 96,66%, 8,93. Efisiensi mikroenkapsulasi terlihat perbedaan yang signifikan, efisiensi paling tinggi terdapat pada penggunaan maltodekstrin dari pati kentang yaitu 44,33%.

Kata Kunci : *Pati, Maltodekstrin, Asap cair, Mikrokapsul, Efisiensi*

Dosen pembimbing: Prof. Dr. Ir. Purnama Darmadji, M.Sc

Prof. Dr. Ir. Supriyanto, MS

Dr. Rini Yanti, S.TP., MP

THE EFFECT OF SWEET POTATO, POTATO, TARO, AND BELITONG TARO STARCH ON THE CHARACTERISTICS OF LIQUID SMOKE MICROENCAPSULANT

ROSYDINA GHASSANI
12/333171/TP/10432

ABSTRACT

Indonesia were high in the number of tuber varieties wich have great economic value. However, the use of the tuber varieties might not match the value of the tuber itself. The greater tuber class in general has been applied to the needs of industries such as cassava for the production of tapioca, while the lesser tuber class has not. Based on that, the starch needs to be modified in order to obtain the properties suitable for a particular application, for example by making maltodextrin. In this research the tuber starches that were used to make maltodextrins are cassava, sweet potato, taro, and Belitung taro starch . Each tuber has a high starch content so that it can be used as maltodextrin. After becoming maltodextrin, liquid smoke were used as the bioactive compound so that the maltodextrin can be used as the encapsulan agent. Liquid smoke contains an active component which one of those is phenol. The phenols were easily damaged and are volatile, so that the liquid smoke need encapsulan. The purpose of this study was to determine the potential of sweet potato starch, potato, belitung taro, and taro starch maltodextrin as encapsulan on microencapsulated liquid smoke.

In this study, the four starches is hydrolyzed with a time of 90 minutes and the temperature of 85^{o}C. Then, the DE (Dextrose Equivalent) and solubility of the maltodextrin were analyzed. After that, the spray drying method was done with a variety of liquid smoke redistilat dissolved solids with maltodextrin ratio of 1: 5. After the microcapsules were analyzed, the characteristics include levels of phenol, the presence of phenol, particle size, and the morphology and efficiency of microcapsules were also analyzed. The results showed solubility and DE respectively of the maltodextrin tubers: cassava 97.47%, 7.75; potato starch 96.28%, 9; Belitong taro starch 98.84% ,10.15 and Taro starch 96.66%, 8.93. Microencapsulation efficiency seen to have significant difference, the highest efficiency in the use of maltodextrin was from potato starch (44.33%).

Keywords : *Starch, Maltodextrin, Liquid smoke, Microcapsule, Efficiency*

Dosen pembimbing: Prof. Dr. Ir. Purnama Darmadji, M.Sc

Prof. Dr. Ir. Supriyanto, MS

Dr. Rini Yanti, S.TP., MP