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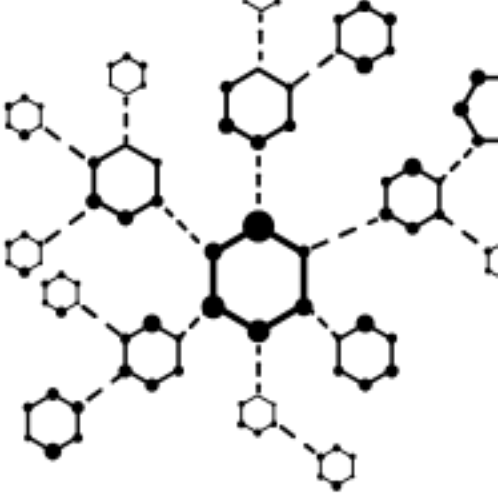


Kata Pengantar

PATUT kita bersyukur kepada Sang Pencipta, Allah SWT., pemilik langit dan bumi beserta isinya atas anugrah berupa waktu, kesempatan, pikiran serta ide kepada penulis, sehingga dapat menulis buku "Enzim Industri", yang membahas tentang aplikasi enzim dalam bidang industri makanan dan farmasi.

Dalam kesempatan ini penulis ingin memperkenalkan sejumlah enzim yang bermanfaat dalam bidang industri, antara lain: enzim selulase, amilase, lipase, bromelain, papain, dan lain-lain.

Buku ini digagas dalam tiga belas bab; Bab-1. Pendahuluan, yang membahas tentang enzim yang terlibat dalam industri secara umum, dan klasifikasinya. Bab-2. Lipase, merupakan kelompok enzim yang berfungsi untuk mengkatalisis proses hidrolisis lemak. Beberapa jenis lipase memiliki rentang substrat yang luas, mencakup ester kolesterol, fosfolipid, serta vitamin yang larut dalam lemak, termasuk juga sphingomyelinase.

Demikian pula Selulase, merupakan salah satu dari beberapa enzim yang diproduksi terutama oleh jamur, bakteri, dan protozoa yang mengkatalisis selulolisis, dekomposisi selulosa dan beberapa polisakarida terkait. Selulase, enzim yang memecah molekul selulosa menjadi monosakarida ("gula sederhana") seperti beta-glukosa, atau polisakarida dan oligosakarida yang lebih pendek. Penguraian selulosa sangat penting secara ekonomi, karena membuat konstituen utama tanaman tersedia untuk dikonsumsi dan

digunakan dalam reaksi kimia, terutama untuk pembuatan bioetanol untuk bahan bakar. Pembahasannya panjang lebar di dalam Bab-3.

Amilase, enzim yang mengkatalisis hidrolisis pati (Latin: Amylum) menjadi gula. Amilase hadir dalam air liur manusia dan beberapa mamalia lain, di mana ia memulai proses kimiawi pencernaan. Bagaimana perannya dalam industri? Hal ini dibahas dalam Bab-4 buku ini.

Xilosa isomerase merupakan enzim yang berperan dalam mengkatalisis konversi D-xilosa menjadi D-xilulosa dan sebaliknya. Aplikasi yang paling banyak digunakan dari enzim ini adalah dalam konversi glukosa menjadi fruktosa untuk menghasilkan sirup jagung fruktosa tinggi (HFCS). Hal ini dijelaskan dalam Bab-5.

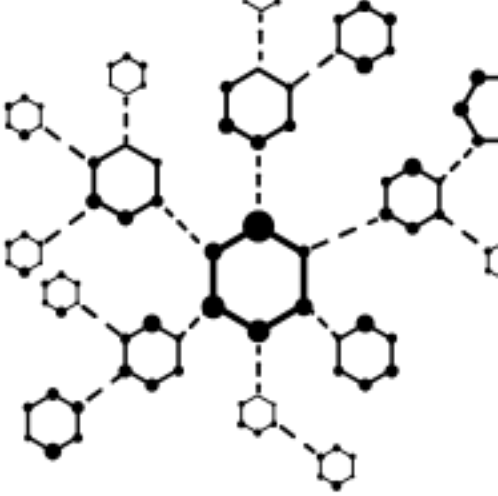
Bromelain adalah ekstrak enzim dari batang nanas, namun ditemukan juga di semua bagian nanas segar. Ekstraknya memiliki sejarah penggunaan sebagai obat tradisional. Sebagai bahan, digunakan dalam kosmetik, sebagai obat topikal, dan sebagai pelunak daging (lihat Bab-6, tentang uraian lengkapnya.

Papain, atau papaya proteinase I, merupakan enzim sistein protease (EC 3.22.2) yang terdapat dalam buah pepaya (Carica papaya) serta pepaya gunung (Vasconcellea cundinamarcensis). Papain (Bab-7) memiliki berbagai aplikasi komersial yang signifikan di sektor-sektor, seperti industri kulit, kosmetik, tekstil, deterjen, makanan, dan farmasi. Dalam industi makanan berfungsi dalam pelunakan daging secara cepat.

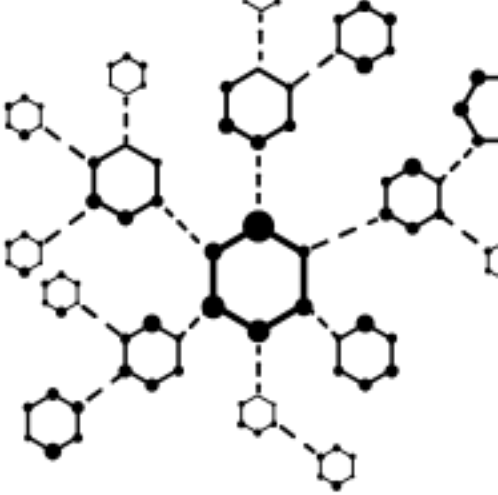
Demikian pula dengan beberapa enzim lain, seperti tripsin, asparaginase, urokinase, beta-laktamase, fikain dan subtilisin, semuanya dijelaskan dalam bab-bab berikutnya dalam buku tipis ini, semoga uraian yang serba singkat ini dapat memberikan wawasan tentang enzim industri dan bermanfaat.

Tak ada kata sempurna, karena manusia tempatnya kesalahan, sehingga tak menutup kesempatan untuk lebih sempurna lagi di lain waktu. Hal ini tentu masukan dan saran yang positif sangat kami harapkan dari pembaca.

Rudi Kartika



Daftar Isi



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