

## ABSTRAK

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### **ISOLASI DAN IDENTIFIKASI BAKTERI *Bifidobacterium sp.* DARI ISOLAT AIR SUSU IBU**

Skripsi, Fakultas Sains dan Teknologi (2022)

(xiv + 54 halaman; 6 gambar; 8 tabel; 10 lampiran)

ASI menjadi sumber nutrisi yang dibutuhkan bagi pertumbuhan dan perkembangan awal pada bayi, serta perkembangan sistem imun pada bayi. ASI mengandung prebiotik berupa *Human Milk Oligosaccharides* (HMO) yang memberikan pengaruh positif bagi bakteri tertentu pada mikrobiota kelenjar susu dan salah satunya adalah *Bifidobacterium sp.*. Penelitian bertujuan untuk melakukan isolasi, karakterisasi, dan evaluasi kandidat isolat *Bifidobacterium sp.* dari sampel ASI Ibu lokal di Indonesia. Percobaan yang dilakukan melewati beberapa tahap: diperoleh dua sampel ASI, sampel 1 (S1) dan sampel 2 (S2); kandidat *Bifidobacterium sp.* diisolasi menggunakan media TPY+*L-cysteine*; hingga murni; uji identifikasi dilakukan dengan pewarnaan gram, motilitas, dan aktivitas katalase; karakteristik biokimia dilakukan uji fermentasi sepuluh jenis gula; dan uji identitas secara molekuler dengan 16s-RNA. Hasil yang diperoleh pada penelitian didapati enam kandidat isolat *Bifidobacterium sp.*, yaitu: KB-B6, BS2-PB5, BS2-MB1, BS2-PS1, BS2-PB3, dan BS2-PS2, dengan karakteristik gram positif, non-katalase, non-motil, bentuk seperti basil, terdapat penebalan pada ujung sel, dan ada atau tidaknya percabangan. Uji fermentasi terhadap sepuluh jenis gula diprediksi isolat BS2-PB3, BS2-PS2, BS2-PS1, dan KB-B6 berupa *B. parvolorum*, serta isolat BS2-MB1 dan BS2-PB5 berupa *B. pseudolongum subsp. globosum*. Melalui Analisis uji identifikasi molekuler 16S-rRNA pada isolat BS2-PB3 didapati bahwa isolat memiliki 100% kesamaan dengan spesies *Bifidobacterium breve*

Kata Kunci : Air Susu Ibu, *Bifidobacterium sp.*, 16S-rRNA, Karakterisasi

Referensi : 67 (1973-2022)

## ABSTRACT

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### ISOLATION AND IDENTIFICATION OF *Bifidobacterium sp.* BACTERIA FROM HUMAN BREAST MILK ISOLATE

Thesis, Faculty of Science and Technology (2022)

(xiv + 54 pages; 6 total figures; 8 tables; 10 appendices)

Breast milk is a source of nutrients needed for early growth and development as well as the development of the immune system in infants. Breast milk contains prebiotics in the form of Human Milk Oligosaccharides (HMO) which have a positive effect on certain bacteria on the mammary gland microbiota, one of which is *Bifidobacterium sp.*. This study aims to isolate, characterize, and evaluate candidate isolates of *Bifidobacterium sp.* from samples of breast milk of local mothers in Indonesia. The research was carried out through several stages, which includes: Sample 1 (S1) and Sample 2 (S2) breast milk sampling; *Bifidobacterium sp.* candidate isolated on TPY+L-cysteine media; purification of culture from the medium; identification test conducted with gram staining, motility test, and catalase activity test, biochemical characteristics identification with ten types of sugar during sugar metabolism test, and molecular identity test with 16s-RNA. Through all the tests, , six candidate samples of *bifidobacteria* were obtained: KB-B6, BS2-PB5, BS2-MB1, BS2-PS1, BS2-PB3, and BS2-PS2, with the characteristic are found to be gram-positive, non-catalase, non-motil, bacilli-like shaped, thickening at the ends of the cells, and the presence or absence of branching. Sugar fermentation test with ten types of sugar obtained possible predictions of the isolate species obtained, BS2-PB3, BS2-PS2, BS2-PS1, dan KB-B6 namely *B. parvolorum*, followed by the two isolates of BS2-MB and BS2-PB5 as *B. psedulogum subsp. globosum*. Through analysis of the 16S-rRNA molecular identification test on BS2-PB3 isolates, it was found that the isolates had the same species as *Bifidobacterium breve*.

Keywords : Breast Milk, *Bifidobacterium sp.*, 16S-rRNA, Characterization

Reference : 67 references (1973-2022)