

UJI EFEKTIVITAS MEDIA DMEM BEBAS SERUM DENGAN PENAMBAHAN MADU *Tetragonula sp* DAN ROYAL JELLY *Apis mellifera* TERHADAP PROLIFERASI SEL FIBROBLAS KULIT PREPUTIUM

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Abstrak

Fetal Bovine Serum (FBS) banyak digunakan dalam penelitian, misalnya rekayasa stem sel dengan transduksi protein sel fibroblas. Diperlukan media kultur optimal untuk meningkatkan transduksi protein. Untuk mengurangi protease, FBS disubstitusi dengan madu dan *royal jelly*. Penelitian ini bertujuan untuk mengetahui efektivitas media DMEM bebas serum penambahan madu *Tetragonula sp* dan *royal jelly Apis mellifera* pada proliferasi sel fibroblas kulit *preputium*. Desain penelitian menggunakan metode eksperimen murni. Sampel diperoleh dari orang sehat. Sel fibroblas dikultur dengan berbagai konsentrasi madu dan *royal jelly* (0,1%, 1%, 5%), kemudian diukur menggunakan uji MTT. Kultur sel fibroblas pada media penambahan madu *Tetragonula sp* dan *royal jelly Apis mellifera* 0,1% memiliki perbedaan signifikan, dengan proliferasi lebih tinggi dibanding 1% ($p=0.000$) dan 5% ($p=0.000$), tetapi tidak melebihi proliferasi pada media FBS. Penambahan komponen lain diperlukan untuk mengoptimalkan peningkatan proliferasi pada media madu dan *royal jelly*. Komposisi madu dan *royal jelly*, terutama gula, dapat menghambat pertumbuhan sel fibroblas. Hal ini ditunjukkan dengan adanya penurunan proliferasi di konsentrasi 5%. Isolasi bahan aktif proliferasi pada madu dan *royal jelly* dapat dijadikan alternatif pengembangan pengganti FBS yang efektif dan aman.

Kata Kunci : DMEM, Madu, *Royal Jelly*, *Preputium*

THE EFFECTIVENESS OF SERUM-FREE DMEM MEDIA WITH ADDITION OF *Tetragonula sp* HONEY AND ROYAL JELLY *Apis mellifera* ON PROLIFERATION OF FIBROBLAST PREPUTIUM SKIN CELLS

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Abstract

Fetal Bovine Serum (FBS) is widely used in research, for example stem cell engineering by protein transduction of fibroblast cells. An optimal culture medium is needed to increase protein transduction. To reduce protease, FBS is substituted with honey and royal jelly. This study aimed to determine the effectivity of serum-free DMEM medium with *Tetragonula sp* honey and royal jelly *Apis mellifera* on proliferation of fibroblasts *preputium* cells. The research design used true experimental methods. Samples taken from healthy people. Fibroblast cells were cultured with various concentrations of honey and royal jelly (0.1%, 1%, 5%), then measured with MTT test. Fibroblast cells cultured in *Tetragonula sp* honey and royal jelly *Apis mellifera* 0.1% medium had a significant difference, with proliferation higher than 1% ($p=0,000$) and 5% ($p=0,000$), but did not exceed proliferation in FBS medium. The addition of other components was needed to optimize proliferation in honey and royal jelly medium. The composition of honey and royal jelly, especially sugar, can inhibit fibroblast cells growth. This was indicated by decreased proliferation on 5% concentration. Isolation of active ingredients of proliferation in honey and royal jelly can be used as an alternative development of effective and safe substitute for FBS.

Keywords : DMEM, Honey, Royal Jelly, *Preputium*