INTISARI

TETI, I.K. 2017. ANALISIS ASAM LEMAK DALAM PERTUMBUHAN BAKTERI *Salmonella typhi* ATCC 13311 DENGAN MENGGUNAKAN METODE KROMATOGRAFI GAS, SKRIPSI, FAKULTAS FARMASI, UNIVERSITAS SETIA BUDI, SURAKARTA.

Infeksi adalah proses invasi dan pembiakan mikroorganisme yang terjadi di jaringan tubuh manusia. Salah satu agen penyebab infeksi adalah bakteri *Salmonella typhi*. Mendeteksi bakteri penginfeksi pada tubuh manusia dengan metode konvensional biasanya memerlukan waktu 24 jam setelah pemeriksaan mengenai gejala timbulnya infeksi. Pemeriksaan tersebut dinilai kurang efektif. Penelitian ini bertujuan untuk mencari waktu inkubasi paling optimal bakteri *Salmonella typhi* ATCC 13311 yang dapat diidentifikasi senyawanya dengan metode kromatografi gas.

Bakteri *Salmonella typhi* ATCC 13311 dikultur dalam media BSA dan diinkubasi pada masing-masing variasi waktu yaitu 6 jam, 12 jam, 24 jam, 36 jam dan 48 jam. Derivatisasi asam lemak bakteri *Salmonella typhi* ATCC 13311 menggunakan metode esterifikasi yang menghasilkanasam lemak metil ester (*fatty acid methyl ester)*. Sampel asam lemak metil ester bakteri *Salmonella typhi* ATCC 13311 kemudian dianalisis menggunakan kromatografi gas dengan kondisi suhu awal kolom 120°C.

Kromatografi gas mampu menganalisis sampel asam lemak metil ester bakteri *Salmonella typhi* ATCC 13311 pada waktu inkubasi kurang dari 24 jam dan waktu optimal analisis adalah 6 jam. Hasil waktu retensi pada analisis sampel asam lemak metil ester bakteri *Salmonella typhi* ATCC 13311 pada inkubasi 6 jam = 3,895, 12 jam = 3,935, 24 jam = 3,737, 36 jam = 3,468, 48 jam = 3,335.

Kata kunci : Bakteri, *Salmonella typhi* ATCC 13311, kromatografi gas, asam lemak metil ester

ABSTRACT

KARIMAH, T.I. 2017. FATTY ACID ANALYSIS IN BACTERIAL GROWTH OF *Salmonella typhi* ATCC 13311 BY GAS CHROMATOGRAPHY METHOD, SKRIPSI, PHARMACEUTICAL FACULTY, UNIVERSITY OF SETIA BUDI, SURAKARTA.

Infection is a process of invasion and breeding of microorganism that occur in the tissues of the human body. One of the infectious agents is Salmonella typhi bacteria. Detecting infectious bacteria in the human body by conventional methods usually takes 24 hours after examination of symptoms infection. The examination was considered less effective. This study aims to find the most optimal incubation time of bacteria *Salmonella typhi* ATCC 13311 which can be identified its compound by gas chromatography method.

Salmonella typhi ATCC 13311 bacteria were cultured in BSA media and incubated at each time variation there were 6 hours, 12 hours, 24 hours, 36 hours and 48 hours. The bacterial fatty acid derivatisation of *Salmonella typhi* ATCC 13311 used esterification method which yields fatty acid methyl ester. Samples of fatty acid methyl ester for bacteria *Salmonella typhi* ATCC 13311 the next analyzed by gas chromatography with the initial temperature conditions of column 120 ° C.

Gas chromatography was able to analyzed the sample of fatty acid methyl ester of bacteria *Salmonella typhi* ATCC 13311 at incubation time less than 24 hours and the optimal time of analysis was 6 hours. Results of retention time on analyzed of fatty acid methyl ester samples of bacteria *Salmonella typhi* ATCC 13311 at incubation 6 hours = 3.895, 12 hours = 3.935, 24 hours = 3.737, 36 hours = 3.468, 48 hours = 3.335.

Keywords : Bacteria, *Salmonella typhi* ATCC 13311, gas chromatography, fatty acid methyl ester