ABSTRAK

FITRI ANGGRAENI, 2024, FORMULASI DAN UJI AKTIVITAS SERUM DARI SRFF *(Saccharomyces Cerevisiae Rice Ferment Filtrate)* DENGAN WAKTU FERMENTASI 72 JAM SEBAGAI ANTI-AGING SECARA IN VIVO, PROGRAM S1 FARMASI, FAKULTAS FARMASI, UNIVERSITAS SETIABUDI, SURAKARTA. Dibimbing oleh apt. Inaratul Rizkhy Hanifah, M.Sc dan Dra. apt. Suhartinah, M.Sc.

Penuaan merupakan keadaan di mana kulit mulai mengalami penurunan fungsi secara progresif yang salah satunya dapat disebabkan oleh radikal bebas. Radikal bebas merusak kulit melalui stres oksidatif dengan degradasi kolagen dan elastin. Pemanfaatan fermentasi dalam industri kosmetik *anti-aging* semakin populer karena kemampuannya dalam meningkatkan kualitas dan efektivitas dari produk. Penelitian ini bertujuan untuk membuktikan bahwa *Saccharomyces cerevisiae rice ferment filtrate* (SRFF) memiliki mutu fisik yang baik serta memiliki aktivitas sebagai *anti-aging* jika di formulasikan menjadi serum dengan variasi *gelling agent* Na CMC 1%, 2% dan 3%.

Fermentasi dilakukan pada 10 gram nasi dengan 100 ml *aquadest* lalu ditambahkan dengan ragi *Saccharomyces cerevisiae* dan difermentasi selama 72 jam sehingga diperoleh SRFF. Hasil fermentasi dibuat serum dengan variasi basis Na CMC dengan konsentrasi 1%, 2% dan 3% . Kemudian dilakukan pengamatan *anti-aging* pada punggung kelinci yang dipapar sinar UV-A. Uji stabilitas fisik serum meliputi uji organoleptis, pH, homogenitas, viskositas, stabilitas dan uji iritasi. Kemudian dilakukan analisis data dengan SPSS metode *Paired T-Test* ANOVA.

Senyawa antioksidan memiliki efek anti penuaan dengan melawan radikal bebas. Gamma oryzanol merupakan senyawa ester dari asam ferulat dan sterol yang terdapat dalam beras berperan sebagai antioksidan dengan meningkatkan regenerasi sel dan pemeliharaan kesehatan kulit sehingga mampu melawan radikal bebas. Hasil penelitian menunjukkan bahwa formula 2 memiliki aktivitas *anti-aging* berdasarkan persentase kolagen (116,06%), elastisitas (90,64%) dan kelembaban (284%). Berdasarkan hasil data statistik menunjukkan formula 2 tidak berbeda signifikan dengan kontrol positif tetapi stabilitas pada formula mengalami penurunan nilai pH ($p>0,05$).

Kata kunci : *Anti-aging,* Serum, Na CMC, SRFF

ABSTRACT

FITRI ANGGRAENI, 2024, FORMULATION AND TESTING OF SERUM ACTIVITY FROM SRFF (Saccharomyces Cerevisiae Rice Ferment Filtrate) WITH A FERMENTATION TIME OF 72 HOURS AS AN ANTI-AGING AGENT IN VIVO, BACHELOR OF PHARMACY PROGRAM, FACULTY OF PHARMACY, UNIVERSITY OF SETIABUDI, SURAKARTA. Supervised by apt. Inaratul Rizkhy Hanifah, M.Sc and Dra. Apt. Suhartinah, M.Sc.

Aging is a state in which the skin begins to experience a progressive decline in function, one of which can be caused by free radicals. Free radicals damage the skin through oxidative stress with degradation of collagen and elastin. The utilization of fermentation in the anti-aging cosmetic industry is gaining popularity due to its ability to improve the quality and effectiveness of the product. Therefore, this study aims to prove that Saccharomyces cerevisiae rice ferment filtrate (SRFF) has good physical quality and has anti-aging activity when formulated into serum with variations of gelling agent Na CMC 1%, 2% and 3%.

Fermentation was carried out on 10 grams of rice with 100 ml of distilled water then added with Saccharomyces cerevisiae yeast and fermented for 72 hours to obtain SRFF. The fermentation results were made into serum with variations of Na CMC base with concentrations of 1%, 2% and 3%. Then anti-aging observations were made on the back of rabbits exposed to UV-A rays. Serum physical stability test includes organoleptic test, pH, homogeneity, viscosity, stability and irritation test. Then data analysis was done with SPSS Paired T-Test ANOVA method.

The results showed that formula 2 has anti-aging activity based on the percentage of collagen (116.06%), elasticity (90.64%) and moisture (284%). Based on the results of statistical data, it shows that formula 2 is not significantly different from the positive control but the stability of the formula has decreased in pH value ($p<0.05$). So it can be concluded that increasing the concentration of Na CMC can reduce anti-aging activity based on the results of collagen percentage, elasticity and moisture.

Keywords : *Anti-aging,* Serum, Na CMC, SRFF