

Analisis Histopatologi Kulit Terpapar *Photodamage* dengan Pemberian *Bio-Sunscreen* Ekstrak Kulit Rambutan dan Astaxanthin

Diah Rachmalita Septiana Putri¹, Desy Armalina², Neni Susilaningsih³

¹ Program Studi Kedokteran, Fakultas Kedokteran, Universitas Diponegoro

² Bagian Patologi Anatomi, Fakultas Kedokteran, Universitas Diponegoro

Jl.Prof.H.Soedarto, SH., Tembalang-Semarang 50275, Telephone: 02476928010

Corresponding author: Email: desy.armalina@gmail.com

ABSTRACT

Background: High levels of UV exposure can lead to photodamage on the skin. Various preventive measures can be taken, including using sunscreen. The presence of flavonoids and tannins in sunscreens made from rambutan peel extract and Astaxanthin has the ability to neutralize free radicals that can harm the skin and caused Photodamage. **Objective:** To find out the correlation of Bio-Sunscreen from Rambutan Peel Extract and Astaxanthin with skin that exposed to photodamage. **Methods:** SPF testing was conducted on Bio-Sunscreen, followed by a trial involving 3 control groups and 4 treatment groups, each consisting of 5 Wistar rats. The trial was conducted three times within 7 days (every 2 days) for 4 weeks. Histopathological analysis of rat skin was performed based on the Carsana grading. **Results:** The highest SPF levels found in NPE groups with SPF 36,94 continued by cream formulation of NPE + astaxanthin with SPF 35,21 , astaxanthin with SPF 34,33, and NPE + astaxanthin with SPF 31,78. The histopathological analysis resulted showed no damage in P3, and P4 groups. In the P1, and P2 groups showed little damage with scores were at levels 0-1 (0-5%). **Conclusion:** There is an influence of applying rambutan skin extract (*Nephelium lappaceum*) and Astaxanthin as natural photoprotective agents on photoaging and photodamage, as well as the histopathological appearance of photodamage in mice (*Mus musculus*). The Sun Protection Factor (SPF) value that can be used as a natural sunscreen in rambutan skin extract (*Nephelium lappaceum*) and Astaxanthin is obtained as 35 SPF.

Keywords: Photodamage, Bio-Sunscreen, Rambutan Peel Extract, Astaxanthin