

ABSTRACT

***IN VIVO* ANTIMALARIAL ACTIVITY STUDY OF
ANDROGRAPHOLIDE-CARBOXYMETHYL CHITOSAN SOLID
DISPERSION IN *Plasmodium berghei* INFECTED MICE****Alfinda Rahma Zuraidah**

Andrographolide (ADG) a diterpene lactone present in *Andrographis paniculata*, has wide pharmacological activities, including analgesic, antipyretic, anti-inflammatory, hepatoprotective effect, antiviral, antidiabetic and antithrombotic. Andrographolide has a low aqueous solubility and low bioavailability after oral administration. Solid dispersions of andrographolide using carboxymethyl chitosan (CMCS) carriers was prepared to improve the solubility and dissolution rate and activity of andrographolide. Andrographolide-CMCS solid dispersions was prepared by solubilization and spray drying method. The objective of this research was to study the effect of solid dispersion forming of andrographolide to *in vivo* antimalarial activity in *Plasmodium berghei* infected mice. Characterization of the solid dispersion systems was done using SEM, FTIR, DTA, X-Ray Diffraction. The result showed that solid dispersion systems with polymer carboxymethyl chitosan has a spherical shape. The result of DTA showed that solid dispersion systems with polymer carboxymethyl chitosan has different endothermic peak if compared with endothermic peak of andrographolide. X-Ray diffractogram of solid dispersion systems showed crystalline peak of andrographolide disappear that means crystalline peak of andrographolide was changed. The result of the *in vivo* antimalarial activity of solid dispersion systems andrographolide-carboxymethyl chitosan against *Plasmodium berghei* has found to have an average inhibition at fifth day is $73,26 \pm 1,12$ % and increased by 2,19 times if compared with andrographolide. *In vivo* antimalarial assay of solid dispersion systems andrographolide-carboxymethyl chitosan higher than andrographolide and showed significantly difference. Andrographolide-CMCS solid dispersion promises to increase the usefulness of andrographolide as antimalarial drug and other pharmacological activity.

Keywords: andrographolide, carboxymethyl chitosan, solid dispersions, antimalarial activity, *Plasmodium berghei*, peter test.