

ABSTRACT

Sleep is an important activity for the body. Sleep activity helps the body to healing the damaged cells and boosting the immune system. But many of us are not getting a good sleep quality to receive the benefits of sleep. For increasing sleep quality, most people believe that use of aromatherapy can make the body more relaxed and helps the users to sleep more soundly. This final project studies the aromatherapy effects on sleep quality seen from biopotential signals in the brain, the electroencephalogram (EEG Signal).

In this final project, the EEG signal becomes the input of the system. EEG signals are obtained from the acquisition process using Mitsar-EEG-202 and WinEEG Software. Then, the EEG signal will be visually read according to shape, frequency, amplitude, and location. The process of reading EEG signal will produce some parameters which become the determinant factor of sleep quality, such as sleep latency, sleep phase duration, sleep efficiency, etc. The data will be tested manually (calculating sleep efficiency) per individual and statistically (mean test and variance test). The output of this system is a comparison analysis of sleep quality with aromatherapy stimulus and without stimulus.

The results of statistical analysis showed that there was no significant influence between subjects who were given aromatherapy stimulus to the subject without stimulus. But in individual analysis, sleep quality with aromatherapy stimulus is better than without stimulus in some subjects. If calculated on average, stimulus of lavender aromatherapy can increase sleep efficiency up to 8.32% and aromatherapy of sandalwood reaches 7.95%.

Keywords : *sleep quality, EEG, aromatherapy, Mean Test and Varians Test*