

## ABSTRACT

### THE EFFECT OF CHRONIC MOBILE PHONE ELECTROMAGNETIC WAVES EXPOSURE ON ANXIETY LEVEL AND CATALASE ENZYME ACTIVITY OF MALE RATS (*Rattus norvegicus*) *Sprague dawley* STRAIN

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The high usage of tools that produce electromagnetic waves such as mobile phone cause potential health problems. Exposure to mobile phone electromagnetic waves can damage various body systems, ranging from behavioral disorders to biochemical balance disorders. This study aims to determine the effect of mobile phone electromagnetic waves exposure on the anxiety level and catalase enzyme activities of male rats (*Rattus norvegicus*) *Sprague dawley* strain. In this study, we used 18 rats were divided into 3 groups. Control group (C) didn't expose to electromagnetic waves, P1 group exposed to one hour a day, and P2 group exposed to 3 hours a day exposure to electromagnetic waves for 21 days. Then, the rats were examined by elevated plus maze (EPM) for anxiety level. After behavioral test, the rats were euthanized and blood samples were collected through cardiac puncture. The blood samples were analyzed by spectrophotometer for catalase enzyme activity. The result for the time spent in open arm EPM average (second) were obtained at K: 0,18; P1: 0,03; dan P2: 0,1. The average of catalase enzyme activity were obtain at 1,98; 0,76; dan 0,73 Unit/mL for C, P1, and P2 group. Analysis by *One Way Anova* showed no significant difference in anxiety level ( $p=0,127$ ) and showed significant differences in the catalase enzyme activity ( $p=0,019$ ). The conclusion of this study are chronic mobile phone electromagnetic waves exposure may not affects the anxiety level and may decreases the catalase enzyme activity of male rats (*Rattus norvegicus*) *Sprague dawley* strain.

**Key words** : anxiety, catalase enzyme, electromagnetic waves, mobile phone