

**UNIVERSITI TEKNOLOGI MARA**

**ASSESSMENT OF STRESS BIOMARKERS  
ASSOCIATED WITH PERCEIVED STRESS SCALE  
AMONG STEEL MANUFACTURING WORKERS.**

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**Declaration by Student**  
Approval by Supervisors

Project entitled "Assessment of Stress Hormone Associated with Perceive Stress Scale among Steel Manufacturing Workers" is a presentation of my original research work. Wherever contributions of others are involved, every effort is made to indicate this clearly, with due reference to the literature, and acknowledgement of collaborative research and discussions. The project was done under the guidance of Mr Ahmad Razali B Ishak as Project Supervisor. It has been submitted to the Faculty of Health Sciences in partial fulfillment of the requirement for the Degree of Bachelor in Environmental Health and Safety (Hons).

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## ABSTRAK

### ABSTRACT

#### **Assessment of Stress Hormone Associated with Perceive Stress Scale among Steel Manufacturing Workers**

**Siti Nornajihah Binti Nordin**

Over the past decades, salivary biomarker has gained a lot of interest in the detection and assessment of stress (Nater et al., 2005). This study aims to identify salivary biomarkers immunoglobulin A (IgA) and alpha amylase level associated with stress among Steel Manufacturing workers. In addition, this study is also to assess the self-perceived stress between two different groups, work area (administration vs. production) and smoking status (smoking vs. non-smoking) and its association with the marks scored. All unstimulated saliva samples for assessment of immunoglobulin A (IgA) and alpha amylase (SAA) were collected in the morning, between 8.30 am and 12.00 pm by using passive drooling technique. The samples were stored in -20°C freezer until further analysis. The p-value for the test of alpha amylase (SAA) between administrative and production showed no difference ( $p=0.601$ ). Meanwhile, the p-value for SAA vs. smoking status is less than 0.05. Thus, there is difference in mean for SAA ( $p=0.004$ ) between smoking and non-smoking. Higher mean of SAA level was observed in non-smoking workers compared with smoking workers. On the other hand, the p-value for test of immunoglobulin A (IgA) between administration and production show no differences ( $p=0.788$ ). In contrast, there is significant differences ( $p=0.000$ ) between IgA level for smoking and non-smoking workers. Higher mean of IgA level were observed in non-smoking workers compared with smoking workers. There is no correlation ( $r=-0.083$ ) between Perceived Stress Scale (PSS) and SAA level. Meanwhile positive fair correlation ( $r= 0.367$ ) were obtained between PSS and IgA level. These findings suggest that salivary immunoglobulin A can be good biomarkers for stress detection in saliva.

**Keywords:** Salivary Alpha Amylase (SAA), Salivary Immunoglobulin A (IgA), Perceived Stress Scale (PSS)