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***Selected salivary antioxidants and lipid  
peroxidation biomarker in relation to  
periodontal health condition among a group  
of pregnant women  
(A Comparative Study)***

***A thesis  
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## **Abstract**

**Background:** Pregnancy as a systemic condition causes changes in the function of human body as a whole and specifically in the oral cavity and it is also considered as a stressful condition. These changes may favor the increase of oxidative stress.

**Aim:** This study was conducted to estimate the level of selected salivary physicochemical characteristics (flow rate, lipid peroxidation biomarker/malondialdehyde, uric acid, selenium and glutathione peroxidase) in relation to oral health status (dental plaque and periodontal health condition) among a group of pregnant women in comparison with newly married non-pregnant women.

**Subjects, materials and methods:** The study group consisted of sixty pregnant women, they were divided into three equal groups according to trimester (20 pregnant women for each trimester), and they were selected randomly from the Maternal and Child Health Care Centers in Baghdad city, their age range was 20-25 years. In addition to 60 newly married non-pregnant women as a control group and matched with age. Collection of unstimulated salivary samples was carried out under standardized conditions. Plaque index was used to assess dental plaque. While periodontal status was evaluated using periodontal parameters including gingival index and probing pocket depth. Salivary flow rate was measured then salivary samples were analyzed to determine the level of salivary antioxidant (uric acid, selenium, glutathione peroxidase) and lipid peroxidation biomarker of oxidative stress (malondialdehyde).

**Result:** Results found that the mean rank values of (plaque index, gingival index and probing pocket depth) were higher in the study group than that for the control with statistically highly significant difference between them ( $p < 0.01$ ). According to trimester of pregnancy, the highest value for dental plaque was found in the third trimester, however, the difference was statistically not

significant ( $P>0.05$ ). Regarding, gingival index and probing pocket depth, the values were the highest in the second trimester with statistically highly significant difference among three groups ( $p<0.01$ ). The value of salivary flow rate in the study group was lower than those of the controls with statistically highly significant difference between them ( $P<0.01$ ). Regarding to trimester of pregnancy, the lowest value was recorded in third trimester with statistically no significant difference ( $P>0.05$ ). The value of lipid peroxidation biomarker (malondialdehyde) among the study group was higher than that for the control group with statistically highly significant difference between them ( $P<0.01$ ). On the other hand, the values of salivary antioxidants (uric acid, selenium, glutathione peroxidase) were lower in the study group than that of the control group with statistically highly significant difference between them ( $P<0.01$ ). Regarding trimester of pregnancy, the value of lipid peroxidation biomarker (malondialdehyde) among the three trimesters was highest in third trimester with statistically highly significant difference among them ( $P<0.01$ ). On the other hand, the values of salivary antioxidants (selenium, glutathione peroxidase) were the lowest in third trimester with statistically highly significant difference for selenium ( $P<0.01$ ) and statistically significant difference for glutathione peroxidase ( $P<0.05$ ), while the lowest value for salivary uric acid was in second trimester with statistically no significant difference ( $P>0.05$ ).

**Conclusion:** The current study showed an increase in oxidative status and decrease antioxidant components in saliva during pregnancy, that could affect periodontal health which was also affected by oral hygiene.