Consequences of maternally exposure to artificial food colourings (AFCs) which have been used all over the world for many years are not clear. We aimed to investigate the effect of maternally exposed AFCs on renal oxidant and antioxidant biomarkers in when the rats became adult. Thirty female rats were included to the study which were divided into two groups as control (n=15) and experiment (n=15) groups. A mixture of nine food colours (erythrosine, ponceau 4R, allura red, sunset yellow, tartrazine, brilliant blue, azorubine, indigotin) were given daily to experiment group during period of four weeks from the preconception to birth. The control group was given tap water during the same period. Three months after the birth, 24 offspring from each group were selected randomly as control and experiment groups. At the end of experiment the offspring were sacrificed and oxidant and antioxidant biomarkers were determined from their kidney homogenate. Lipid peroxidation product MDA was measured by Draper and Hadley’s double heating method. SOD activity was measured by the method of Woolliams et al., GSH-Px activity was measured by Paglia and Valentina’s method and Catalase activity was measured by Aebi’s method. Mann-Whitney U test was used for statistical analyses. While GSHPx activity was found to be significantly lower, MDA level was found to be significantly higher in experiment group when compared with control group (p< 0.05). Comparison of SOD and Catalaz activity of the groups showed no statistically significant difference from each other. Maternally exposure to AFCs caused decrease in GSH-Px activity which is an antioxidant enzyme. Decrease in GSH-Px level may be related to consumption of enzyme in response to increase in MDA levels, and also may be resulted from the effect of AFCs on enzyme synthesis of kidney in intrauterin period.