The environmental and health issues resulting from pesticide usage constitute a significant global problem.

One of the most important health issues is the cellular damages due to impaired oxidant–antioxidant balance within the cell. In the present study, the authors aimed to investigate the changes of total antioxidant status (TAS) and total oxidant status (TOS) in farm workers versus non-user individuals. For this purpose, blood serum samples of 63 people, who had worked with the high level of pesticides during apple and cherry production for a minimum period of 5 years, were analyzed for TAS and TOS versus 32 non-user samples, who lived in the same region and had never directly worked with pesticides. In addition to these parameters, the acetylcholinesterase (AChE) activity was also measured as a biomarker of toxicity. Based on the findings, TAS and TOS levels (±SD) were detected in farm workers using pesticides as (mean ± SD) 1.63 ± 0.14 μmol H₂O₂ equivalent/L and 1.60 ± 0.11 mmol trolox equivalent/L, respectively. When these values were compared to those of non-user group, a statistically significant increase (p < 0.001) was detected in TOS and a significant decrease (p < 0.001) in TAS. Oxidative stress index calculated regarding TOS and TAS values was found to be significantly different in user group as 1.01 as compared to 0.95 in non-user subjects (p < 0.001). Apart from these results, AChE activity showed no significant difference between two groups (p > 0.001). In the light of the data obtained during this study, it can be concluded that exposure to pesticides may increase oxidative stress in farm workers.