Assessment of Microorganisms in Irrigation Water Collected from Various Vegetable Growing Areas of SWAT Valley, Khyber Pakhtunkhwa

Authors : Islam Zeb

Abstract : Water of poor quality has a potential of probable contamination and a way to spread pollutant in the field and surrounding environment. A number of comprehensive reviews articles have been published which highlight irrigation water as a source of pathogenic microorganisms and heavy metals toxicity that leads to chronic diseases in human. Here a study was plan to determine the microbial status of irrigation water collected from various location of district Swat in various months. The analyses were carried out at Environmental Horticulture Laboratory, Department of Horticulture, The University of Agriculture Peshawar, during the year 2018 – 19. The experiment was laid out in Randomized Complete Block Design (RCBD) with two factors and three replicates. Factor A consist of different locations, and factor B represent various months. The results of microbial status for various locations in irrigation water showed the highest value for Total Bacterial Count, Enterobacteriacea, E. coli, Salmonella, and Listeria (9.05, 8.54, 6.01, 5.84, and 5.03 log cfu L-1 respectively) for samples collected from mingora location, whereas the lowest values for Total Bacterial Count, Enterobacteriacea, E. coli, Salmonella and Listeria (6.70, 6.38, 4.47, 4.42 and 3.77 log cfu L-1 respectively) were observed for matta location. Data for various months showed maximum Total Bacterial Count, Enterobacteriacea, E. coli, Salmonella, and Listeria (12.01, 11.70, 8.46, 8.41, and 6.88 log cfu L-1, respectively) were noted for the irrigation water samples collected in May/June whereas the lowest range for Total Bacterial Count, Enterobacteriacea, E. coli, Salmonella and Listeria (4.41, 4.08, 2.61, 2.55 and 3.39 log cfu L-1 respectively) were observed in Jan/Feb. A significant interaction was found for all the studied parameters it was concluded that maximum bacterial groups were recorded in the months of May/June from Mingora location, it might be due to favorable weather condition.

Keywords : contamination, irrigation water, microbes, SWAT, various months
Conference Title : ICAH 2023 : International Conference on Agronomy and Horticulture
Conference Location : Toronto, Canada
Conference Dates : June 19-20, 2023