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Microbiological Studies on Some Water Samples from South-Western Region of Saudi Arabia

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ABSTRACT. Microbiological studies on water reservoirs of Ash-Shafa, Torabah, Waht and Wehayt showed small number of coliform bacteria lesser than that recommended by the Saudi Arabian Standard Organization (SASO), hence these tested water are not contaminated and suitable for human consumption.

Introduction

Water reservoirs are prone to be contaminated by microbes and, hence, a timely search for this contamination are usually carried out throughout the world[1-6]. There are various factors causing increase in the population densities of microbes in the water reservoirs including recreational activities[2]. Hence, present study was conducted to see a possible contamination of coliform bacteria which might pose hazard to human consumption.

Material and Methods

Samples were collected in sterile 200 ml wide mouthed glass bottles with screw caps under sterile conditions and immediately brought to the laboratory for further studies[7].

Five replicates were taken from each sample for analysis in August 1989, and five replicates of each sample were tested for total bacterial count.

Total plate counts were made with pour plates (5 replicates) of plate count agar. Plates were incubated at 35°C. Total coliform counts were carried out as indicated by the American Public Health Association[8].

Results and Discussion

The number of coliform bacteria per 100 ml of water are quite below the maximum limit recommended by the SASO[9]; Table (1).

TABLE Averages of total plate and coliform counts in water samples from south-western region of Saudi Arabia.

Location	Total plate count / 100 ml	Coliform count / 100 ml	Standard maximum limit for coliform count (100 ml) according to SASO.
Ash-Shafa	1.1×10^3	7	20
Torabah	3.5×10^2	10	20
Waht	2.0×10^2	9	20
Wihayt	4.5×10^3	5	20

The pH values of all the samples collected from these places were between 6, 8, 7 and 8. The water reservoirs of Ash-Shafa, Torabah, Waht and Wihayt is brought to several millions of pilgrims, who gather every year in the city of Holy Makkah to perform Haj.

Although the results of present study show that no health hazards exist in using these water samples but periodical analysis of these reservoirs is necessary where various factors such as swimming, washing and other miscellaneous activities might increase microbial contamination in these reservoirs that might pose hazard to human consumption[4,10-13].

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دراسات ميكروبيولوجية على بعض عينات من مياه المنطقة الجنوبية الغربية للمملكة العربية السعودية

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المستخلص . أوضحت الدراسات الميكروبيولوجية التي أُجريت على أن المخزون المائي لمنطقة الشَّفا وتُربة والوَهط والوهَيْط يحتوى على نسبة غير عالية من بكتيريا القولون طبقًا للمواصفات القياسية السعودية . وعليه ، فإن نتائج تحليل المياه توصى باستخدامها للاستهلاك البشري