

In This Issue**Editor's Summaries of the Articles Published in This Issue of Microbiological & Immunological Communications****Editorial Staff**

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In this issue, Shafiq et al., evaluate the serum levels of interleukin (IL)-2, tumor necrosis factor (TNF)- α , IL-1 β , interferons (IFN)- α , IFN- β , IFN- γ , and IL-10 in patients infected with SARS-CoV-2, Akbar and colleagues isolated and identified the infectious agents of dermatophytes related infections in patients, and screened selected natural remedies for their treatment, Urooj et al., assessed the samples of water collected from different dental units placed in different departments of tertiary care dental hospitals in Karachi to evaluate their conditions, Talpur and colleagues isolated and identified coliform bacteria in the drinking water of Shah Abdul Latif University, Campus, Khairpur (Mir's) Sindh, Pakistan, while Khan and Xin reviewed gut micro biome's role in the development of the immune system, including oral tolerance and immunity.

Levels of Cytokines in SARS-Cov-2 Infected Patients

Cytokine dysregulation is the proposed mechanism for Coronavirus disease 2019 (COVID-19). Shafiq et al evaluated the serum levels of interleukin (IL)-2, tumor necrosis factor (TNF)- α , IL-1 β , interferons (IFN)- α , IFN- β , IFN- γ , and IL-10 in patients infected with SARS-CoV-2. The study was conducted in 120 adult patients with COVID-19 and compared with 40 age and gender-matched healthy subjects as controls. They found that serum cytokines in SARS-CoV-

2 patients, which indicate the host's immune responses against the coronavirus inflammation, seem different from what has been observed with other viral pathogens. The difference in the serum levels of IL-2, TNF- α , INF- α , INF- β , and IL-10 between the two groups was insignificant. However, higher levels of IL-2, TNF- α , and INF- β are reported in mild COVID-19 patients compared to healthy individuals and severe COVID-19 patients. The authors conclude that varying levels of cytokines were detected in the COVID-19 group than in the control group, suggesting distinct immunoregulatory mechanisms involved in COVID-19 pathogenesis.

Dermatophytes Isolation from Patients and In-vitro Application of Selected Natural Extracts and Oils for Anti-Dermatophytic Activity

Dermatophytosis, commonly known as ringworm, is caused by a group of fungi termed dermatophytes. It can invade the keratinized tissue of the skin, nails, and hair. Akbar et al performed a study to isolate and identify the infectious agents of dermatophytes related infections in patients. A total of 19 patients' samples were analyzed in the study, where ten samples were positive for infectious agents. Some common natural compounds, such as apple peel extract (APE), grapes peduncle extract (GPE), propolis oil (PO), and bitter apricot kernel oil (BAKO), were used against the

dermatophytes isolates and were found positive for activity against a few isolates. The APE showed inhibitory activity of 31% against *Trichophyton tonsurans* and 80% against *Epidermophyton floccosum*, while the GPE showed 27% and 74%, PO showed 42% and 69%, and BAKO showed 78% and 70% activity against *Trichophyton tonsurans* and *Epidermophyton floccosum*, respectively. The bioactive compounds in these extracts were analyzed through Fourier Transformed Infrared Spectroscopy.

Microbiological Assessment of Dental Unit Water Lines at a Tertiary Care Dental Teaching Hospital in Karachi

The dental practice depends on many factors, including the ample water supply through the plastic tubing system to irrigate the oral cavity's working area. The water is supplied by the tubing system known as the 'dental unit water lines' (DUWL). Urooj et al assessed the samples of water collected from different dental units placed in different departments of tertiary care dental hospitals in Karachi to evaluate their conditions. The results showed the total viable plate count at 37°C was positive for all samples. The mean total viable plate count (TVC) at 37°C was >200 colony forming units (CFU)/100 ml for all of the samples. The total *coliform* was found in 18 samples out of 38 (47.5%). Whereas fecal *E. coli* and fecal *Enterococci/ Streptococci* are not found in any sample, *Pseudomonas* species were found in all samples. The study concluded that strict disinfection practice is mandatory to avoid cross-infection in dental settings.

Isolation and Identification of Coliform Bacteria from the Drinking Water of the Shah Abdul Latif University Khairpur

Contamination of drinking water in a developing country is mostly due to the lack of awareness of the risks, and inadequate training of personnel and management working on

drinking water systems. Talpur et al carried out a study to isolate and identify coliform bacteria in the drinking water of Shah Abdul Latif University, Campus, Khairpur (Mir's) Sindh, Pakistan. Several water samples from different sites of the University were collected and analyzed for coliform bacteria. The main water supply of the university showed contamination with *E. coli*, *Salmonella*, *Enterobacter*, *Shigella*, and *Neisseria*. The most common microorganism found in water samples was *E. coli*. It is recommended that efforts should be made to de-contaminate the water supply of the university which might result in catastrophic outbreaks of the disease if the water supply remains contaminated.

The Role of Dietary Peptides and the Gut Bacteria in Maintaining Intestinal and Homeostatic Balance

The gut bacteria and the host have a mutually beneficial relationship. This complex interdependence plays a critical role in resource collection via prebiotic carbohydrate breakdown in the intestinal tract, the supply of important nutrients, vitamin synthesis, metabolic operations and maintenance, as well as sheltering against colonization of pathogens, and opportunistic fungal infections. This leads to 'gut microbiota homeostasis' or 'gut microbial equilibrium', i.e., a stable and healthy gastrointestinal tract microbial community. Khan and Xin discuss that the gut micro biome's role in the development of the immune system, including oral tolerance and immunity. The authors argue that nutraceutical products' claim to be immunity boosters should have valid and accurate data to back it up. While assessing the stimulation of blood cell immunity through functional foods is more useful, it does not accurately reflect physical reality, and an investigation into the colonic immune response is a better way to understand it.

Editorial Staff