

## **Evaluation of microbial contamination on contact lenses among university students**

### **Abstract**

Microbial keratitis is affecting approximately 4 to 5 per 10,000 contact lens wearers worldwide and the severity of the disease depends on the type of microbial species contaminating the contact lens. As the number of contact lens wearer increases globally, including Malaysia, in the past ten years, there is a need to identify the type of microbial species that contaminates contact lenses among Malaysians, especially among college students. Therefore, this study was conducted to evaluate microbial contamination on contact lenses among university students and the habits of the contact lens wearers within the university facility. A total of 67 pairs used contact lens samples were collected. CFU/ mL was calculated based on colonies grown on nutrient agar to represent the microbial population density. Gram staining was performed for all pure cultures with different morphologies. Two major groups of contaminants with different morphologies were subjected to identification using biochemical tests. Our results suggested that 41.79 % of the samples collected were contaminated with microbes and the contamination status was significantly different between genders and duration of contact lens wearing per usage ( $p < 0.05$ ). Besides, monthly disposable contact lenses had the highest contamination rate with a mean of  $2.41 \times 10^3$  CFU/ mL when compared to daily and quarter-yearly (3 months) contact lenses. Gram staining showed that 88.47 % of microbial contamination was Gram negative, mainly represented by *Vibrio* spp. and *Aeromonas* spp.. Our study unexpectedly found that contact lenses among university students were contaminated with microbes that might be found in the tap water used to wash their hands.