The antimicrobial preservative efficacy of the eye-drops challenged with E. coli, S. aureus and P. aeruginosa is shown in Table 1.Viable microbial count, as recommended in both Pharmacopeia, was determined by plate count method using 1 ml of 1:10 dilution of product in neutralizer and no bacterial growth means that the number of challenging bacteria was reduced to lower than 10 CFU per ml of the product instead of NR. Therefore, it seems that the term of NR should define an acceptable range.The preservative employed in phenylephrine zinc eyedrop did not possess adequate antimicrobial activity against P. aeruginosa to be able to bring about acceptable low levels of microbial contamination as demanded by regulatory bodies.Other eye-drops showed appropriate reductions in bacterial viability after 6 hrs, 24 hrs and 7 days, except a very low bacterial recovery after 28 days (10–50 CFU ml−1 ) which didn't comply with the no recovery (NR) term of BP 'A' criteria.After a contact time of 6 hrs all the eye-drops except phenylephrine zinc which showed only 1.7 logs reduction in P. aeruginosa initial count, reduced at least 2 logs of all bacterial counts.The number of P. aeruginosa in phenylephrine zinc was reduced 2 logs after 24 hrs of inoculation and was increased to about the initial count after 7 days.After 14 days, all the eye-drops except phenylephrine zinc which showed 1 log reduction in P. aeruginosa count appeared well preserved against all the challenging organisms (?3 logs reduction).As shown in Table 3, more than 2 logs reduction in bacterial counts (after 30 min) and more than 3 logs reduction in fungal counts (after 24 hrs) were observed for all eye-drops except phenylephrin zinc.Most of the eye-drops eradicated the inoculated microorganisms more than 3 logs in 24 hrs and also 7 days, except phenylephrine zinc.After 28 days, there was no bacterial recovery from betamethasone eye-drop, while the number of P. aeruginosa in phenylephrine zinc increased.The results of this study showed that eight out of the nine products met the BP 'B' criteria and USP while all of them except artificial tear were highly contaminated during hospital uses (Table 4).Other eye-drops showed no increase in bacterial counts after 28 days which were about 10–50 CFU ml−1 of the products. In all cases the number of fungi after 7 and 14 days were acceptable and those after 28 days were at least 2 logs lower than the initial counts (Table 2).Therefore another effective antimicrobial preservative system for this formulation should be employed.