Introduction
1. INTRODUCTION

The genus Acanthamoeba is a group of nearly 25 named species that has worldwide distribution. Members of Acanthamoeba are free – living and inhabit a wide range of natural and ecological niches, including fresh, brackish water, beach sand, soil, air etc (4, 13). Acanthamoeba also has been isolated from humans and animals (8, 18). In addition to its natural distribution, Acanthamoeba can be opportunistically pathogenic, being identified as the causative agent of a painful and sight – threatening infection of the cornea, Acanthamoeba Keratitis (AK) (22).

These infections can occur in otherwise healthy, non – immunocompromised individuals. In developed countries, AK infections are usually associated with contact lens wear. Improper sterilization procedures have been identified as the cause of a large percentage of such AK infections (2, 22). In developing nations, AK infections are not generally associated with contact – lens wear; by contrast, most cases are the result of ocular trauma (6, 23).

Acanthamoeba is also responsible for life threatening infections in patients with immunodeficiency disease. These include documented infections of the skin, nasal passages, lung and brain (8, 9). In the brain, Acanthamoeba causes a severe encephalitis termed granulomatous amoebic encephalitis, which is nearly always fatal (18).

Traditional taxonomy of Acanthamoeba has used morphological characteristics such as cyst morphology and trophozoite size and shape as
classification characteristics (20). Species of Acanthamoeba are categorized into 3 morphological groups based largely on the cyst morphology of the species. Molecular analysis using nuclear and mitochondrial small sub-unit (SSU) rRNA genes, support the morphological group structure of the genus (1, 7). Sequence similarities between isolates using these two genes are used to determine phylogenetic relationships between strains and to explore possible correlation with disease phenotypes. The molecular analysis thus far suggests that 15 or more genotypes exist, designated T1, T2...T15 (1,9,11). Characterization of genotypes is an active area of investigation, since it is dependent upon the statistical criteria employed to distinguish genotypes and the expanding number of analyzed isolates. Although the major morphological groups are supported by molecular analyses, a number of the named species have not been observed as unique monophyletic entities when examined by molecular methods.

In the present study, we have examined Acanthamoeba isolates that were obtained from AK in non – contact lens wearers in a south Indian population. The genotypes of these isolates were determined using nuclear rRNA (Rns) gene sequences.