Introduction

This results of AFLP fingerprinting for 13 native Colombian strains are presented here. DNA extraction methods had first been optimised and multivariate data analysis performed for establishing taxonomic relationships. 179. Clinstridium acetobutylicum strains have been isolated from soil from different areas of Colombia as part of the bio-prospecting for solvent-producing microorganisms carried out in the country during the 1990s. Later analysis led to it being established that 13 of these isolated strains exhibited higher total solvent production than the Clinstridium acetobutylicum ATCC 824 reference strain, using glucose as carbon source (5). Promising strains were characterised by PFGE fingerprinting (4); the 16S rRNA gene sequence was also analysed (5).

Results

The AFLP patterns obtained for 12-15 DNA bands ranged in size from 300 to 2,000 bp (Photo 2). A value of 1.0 was calculated for the power of discrimination when applying Hunter and Gaston’s formula (1998). The banding profiles were reproducible when the assays were repeated with DNA extracted by the method in question on different days. AFLP and PFGE data were analysed separately and then put together in a single matrix. 100 bands corresponding to restriction macro-fragments produced by ApaI and SmaI enzymes and 53 electrophoretic profile bands obtained by AFLP were all analysed by multivariate data analysis (Figure 1).

Figure 1. Hierarchical cluster analysis tree based on multiple correspondence analysis showing taxonomic relationships between native and pattern strains.

Conclusions

Combined analysis of both techniques (Figure 1) revealed a group formed by two of the native strains (IBUN 62F and IBUN 18Q, shown in blue), closely related to C. butyricum (green), and a completely separate group formed by the other 11 native strains (red) which were closely related to each other, but not related to the species’ controls included in this study. This could have been indicating that this group of strains belong to a new species of Clinstridium. However, other tests must be carried out to confirm this, such as DNA-DNA hybridisation for all the strains.