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Stenotrophomonas maltophilia genotypes from oral rinse samples of Tibetan children

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INTRODUCTION

Tibetans are one of few tribal groups in the World that reside at high altitudes. Little information on their oral health status or their oral microflora is available. Recently, we conducted an oral health status survey of inhabitants of Lhasa and found that in children, the treatment need for dental caries was low while their periodontal health status was unsatisfactory (Lo et al., 2000). The periodontal health status of the Lhasa adults surveyed was also considered to be unsatisfactory (Corbet et al., 2000). Similar oral health conditions were detected in both the native Tibetans and Han Chinese living in Lhasa. However, no information is available in the literature relating the impact of this unique living environment, life-style, and poor periodontal health to human oral microbiology. We reported earlier from the same group high prevalence (82%) of *Stenotrophomonas maltophila* colonization in oral cavities of Tibetan children living in Lhasa, Tibet Autonomous Region. (Leung et al., 1999) This study aimed at investigating the genotypes of the *S. maltophilia* isolates to further characterize the colonization pattern in the children studied.

MATERIALS AND METHODS

Bacterial stains

- 62 *Stenotrophomonas maltophilia* isolates (range: 0-3/subject, mean 1.3±8 isolate/person) from 50 11-13 year-old Tibetan children at two primary schools.

Randomly amplified polymeric DNA (RAPD)

- Primers: AP4- 5'TCACGATGCA3'
  AP12H-5'CGGCCCTGT3'
  (Williams et al., 1990)

Unweighted pair group method with arithmetic means (UPGMA)

- Dendron® 3.0 Programme (Solltech, Oakdale, USA)

RESULTS

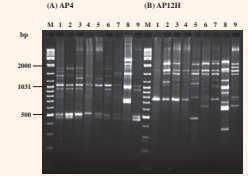

Fig. 1. Typical RAPD profiles of different clonal groups of *Stenotrophonomas maltophilia* generated with primers (A) AP4 (5'TCACGATGCA3') and (B) AP12H (5'CGGCCCCTGT3'). Lanes: M, DNA Ladder Mix (MBI Fermentas);
1, isolate 5084 [clonal type AI];
2, isolate 6007a [clonal type AII];
3, isolate 5037a [clonal type AIII];
4, isolate 5079a [clonal type AIV];
5, isolate 5085a [clonal type BI];
6, isolate 6013b [clonal type BII];
7, isolate 5106b [clonal type BIII];
8, isolate 6013a [clonal type BIV];
9, isolate 5022 [clonal type CV].
Electrophoresis was carried out in a 1% agarose gel.

CONCLUSION

1. *S. maltophilia* of different clonal types appeared to be able to colonize oral cavities of Tibetan children with great ease.
2. The relevance of high colonization of *S. maltophilia* in Tibetan children is worthy of further study.

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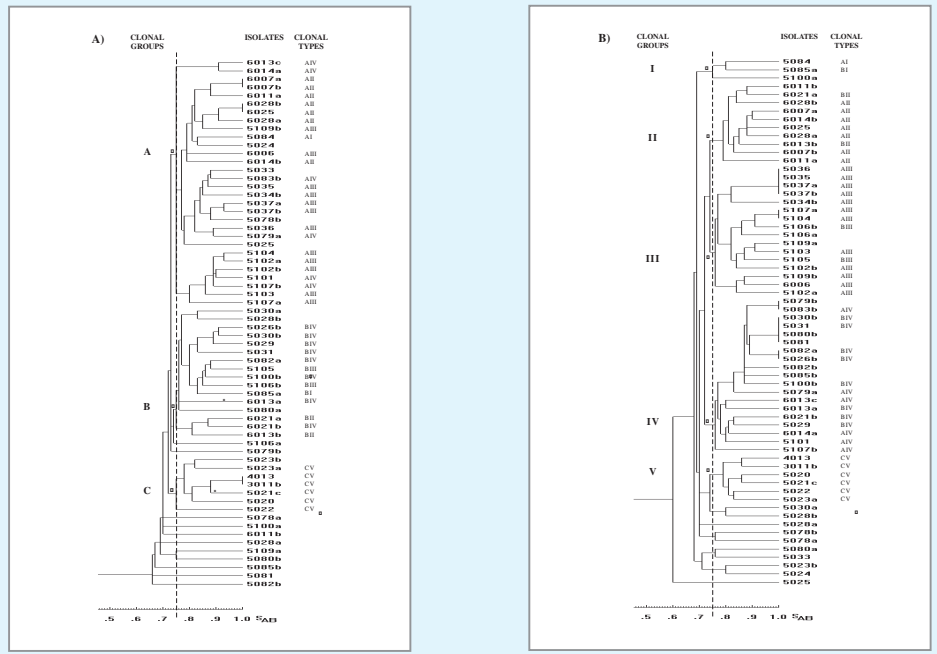

Fig. 2. Dendrograms showing the genetic divergence of 64 *Stenotrophomonas maltophilia* strains as detected by RADP using primers (A) AP4 and (B) AP12H. A dashed line is drawn at S_{AB} = 0.75 to denote the threshold selected to subgroup closely related clusters of isolates. Three and five major clonal sub-groups (asterisks) were discernable using primers AP4 or AP12H respectively. The dendrogram was constructed by unweighed pair group method with arithmetic means (UPGMA clustering analysis). Analysis by χ^2 test showed that occurrence of the 9 identified clonal types was not randomly distributed among the children from the two primary schools, P = 0.0005, indicating the school specificity of clonal types.