

SUMMARY

SERPENTINITE - A NEW WAY OF CONTROLLING DENTAL FLUOROSIS

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Endemic dental fluorosis continues to be a public health problem of high magnitude in several parts of Sri Lanka, where drinking water contains excess quantities of naturally occurring fluoride. A simple and rapid method of defluoridating of these fluoride rich waters was required and it was found that the serpentinite forms a suitable starting material in the defluoridation. However it was shown that the efficiency of serpentinite in removing excess fluoride from fluoride water was limited, and it tends to become deactivate with repeated use. Here we present a method for chemical treatment of serpentinite to enhance the uptake of fluoride. In this way, under laboratory conditions, the concentrations of fluoride can be lowered from 10 mg/L to less than 1 mg/L, i.e. below the WHO permissible level in drinking water. A surface complex formation model was used to describe the removal of fluoride from chemically activated serpentinite.