A SIMPLE PROCEDURE FOR ROUTINE DETERMINATION OF THE STANDARD DEFLUORIDATION CAPACITY OF MEDIA

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SUMMARY: The ability of defluoridation media to up-take fluoride from water solutions is best described by both the Intensity sorption constant and the capacity sorption constant in the best fitting of the two sorption models: Freundlich and Langmuir. However, when it comes to defluoridation of water for drinking purposes, the focus has to be constrained to initial fluoride concentrations that are comparable with waters as often occur in fluorotic areas and are likely to be considered as raw water sources for drinking. Further, to residual fluoride concentrations that are considered safe for cooking and drinking. This paper defines a "Standard Defluoridation Capacity" for defluoridation media as the capacity in mg removable fluoride per g of used medium in a batch experiment, where the initial fluoride concentration is 5 mg/L and the residual concentration is about 1 mg/L. A procedure for determination of the standard fluoride removal capacity of media is described. The simplicity of the test makes it useful when comparing the defluoridation capacities of large numbers of media, but also in routine quality control of the same processed medium as in factory production. Examples are shown where the standard defluoridation capacity is either determined by this test or derived from literature data. The standard defluoridation capacity procedure may further be a useful tool to standardize the quality check of the defluoridated waters.

Keywords: Defluoridation Media; Water Solutions; Standard Defluoridation Capacity; Defluoridation of water; Freundlich Model; Langmuir Model; Standard procedure; Standard test for fluoride removal capacity; Tanzania.

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