

Ingredients of Dentifrices Commercially Available in Korea and the Types of Fluoride Contained

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1. Introduction

There is growing concern among modern people for oral health, the prevention of oral diseases and the importance of health promotion along with improved living standard. Toothbrushing is the most universal and efficient way for oral health care.

A sustained supply of fluoride is also considered important to ensure the successful prevention of dental caries, and prolonged R&D efforts have been made to increase the residence time of fluoride-containing dentifrice in the cavity.

Currently, the Ministry of Food and Drug Safety has formally required dentifrice manufacturers and sellers to display fluoride content when they ask for permission of articles in writing, and has stipulated that the fluoride content of quasi-drug dentifrices must be 1000ppm or less. The Regulatory Reform Committee made a formal proposal to relax the regulation by increasing the fluoride content of dentifrices from 1000ppm to 1500ppm.

Fluorine is in wide use for the purpose of the prevention of oral diseases, and today's people keep being exposed to fluorine due to the use of fluorine-containing dentifrices and preventive dental treatment. Nonetheless, no studies have ever been conducted yet to check the ingredients of every dentifrice on the market and the types of fluoride contained.

The purpose of this study was to examine the ingredients of domestic and foreign dentifrices commercially available in Korea and the presence or absence of fluoride in the dentifrices in an attempt to provide some information on fluoride leak triggered by the use of dentifrices.

2. Methods

The wrapping papers of 154 dentifrice products that were on the market in Korea were analyzed to see what's written on the papers.

Specifically, a frequency analysis was made to obtain information on the ingredients of the dentifrices, the presence or absence of fluoride in the dentifrices and the types of fluoride contained.

3. Results

NaF(Sodium Fluoride) that accounted for 29.9 percent was shown to be the greatest ingredient substance of the dentifrices that were on the market in Korea, followed by MFP(sodium monofluorophosphate) (8.4%), SiO₂(6.6%), Dental type Silica (5.5%) and C31H52O3 (Tocopheryl Acetate) (4.9%) [Table 1].

The distribution of the fluoride-containing dentifrices and the dentifrices without it was analyzed. As a result, the fluoride-containing dentifrices accounted for 62.3 percent, and the dentifrices that didn't contain it represented 37.7 percent[Table 2].

As a result of analyzing the ingredients of the fluoride contained in the fluoride-containing dentifrices, Na accounted for 46.9 percent, and MFP represented 45.8 percent[Table 3].

[Table 1] The ingredients of dentifrices commercially available

Ingredient	N	%
NaF	185	29.9
MFP	52	8.4
SiO ₂	41	6.6
Dental Type Silica	34	5.5
C31H52O3	30	4.9
Xylitol	27	4.4
SiO ₂	41	6.6
Green tea Extract	23	3.7
Isocaproic Acid	14	2.3
The others	210	34.3
	616	100.0

[Table 2] The presence or absence of fluoride in the dentifrices commercially available

The presence or absence of fluoride	N	%
Fluoride containing	96	62.3
Without fluoride	58	37.7
Total	154	100.0

[Table 3] The ingredients of the fluoride contained in the fluoride- containing dentifrices

The types of fluoride	N	%
NaF	45	46.9
MFP	44	45.8
NaF+MFP	7	7.3
Total	96	100

4. Discussions

Toothbrushing is one of oral care methods to prevent oral diseases, and aims to remove dental plaque. Dentifrices are in general use for toothbrushing. Since a large amount of fluorine is contained in the dentifrices on the market in Korea, it seems necessary to be careful about possible human exposure to fluorine when a dentifrice is used.

5. References

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