**Supplementary Material**

**Research title:** Reversal of root caries with CPP-ACP and fluoride varnish in xerostomia

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| Groups | Varnishes | Active Ingredients | Additional Ingredients |
| Group 1 | MI varnish  (GC, Japan) | 5% NaF, CPP-ACP | Polyvinyl Acetate, Hydrogenated  rosin, Ethanol, Silicon Dioxide |
| Group 2 | NUPRO White NaF  (DENTSPLY, USA) | 5% NaF | Urethane Methacrylate, Hydrogenated Rosin, Resin, Isopropanol, Sodium, Sucralose, Flavour, Titanium Dioxide |

**Table S1.** Composition of dental varnishes

**Table S2.** Intra and Inter-examiner reliability for study variables.

|  |  |
| --- | --- |
| **Variables/** Intra-examiner | **Correlation (*p* value)** |
| **Oral dryness score++**  **USWS buffer++**  **USWS pH++** | 0.94 (*p*<0.01)\*\*  0.86 (*p*=0.01)\*\*  0.93 (*p*<0.01)\*\* |
| **Texture+** | 1 (*p*<0.01)\*\* |
| **Cavitation++** | 0.81 (*p*<0.01)\*\* |
| **Colour+** | 0.76 (*p*<0.01)\*\* |
| **Dimension++** | 0.76 (*p*<0.01)\*\* |
| **Hardness+** | 1 (*p*<0.01)\*\* |
| **Gingival distance++** | 0.74 (*p*<0.01)\*\* |
| **Severity index+** | 0.89 (*p*<0.01)\*\* |
| **DIAGNOdent++** | 0.99 (*p*<0.01)\*\* |

**+** Kappa coefficient, **++** correlation coefficient

\*\*Highly significant *p*<0.01

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| **Variables**/Inter-examiner reliability | **Baseline**  **correlation (*p* value)** | **3 or 6 months**  **Correlation (*p* value)** |
| **Oral dryness score++**  **USWS buffer++**  **USWS pH++** | 0.95 (*p*<0.01)\*\*  0.96 (*p*<0.01)\*\*  0.97 (*p*<0.01)\*\* | NA  0.86 (*p*<0.01)\*\*  0.93 (*p*<0.01)\*\* |
| **Plaque index++**  **Texture+** | NA  1 (*p*<0.01)\*\* | 0.95 (*p*<0.01)\*\*  0.64 (*p*=0.02)\* |
| **Cavitation++** | 0.87 (*p*<0.01)\*\* | 0.87 (*p*<0.01)\*\* |
| **Colour+** | 0.78 (*p*<0.01)\*\* | 0.83 (*p*<0.01)\*\* |
| **Dimension++** | 0. 95 (*p*<0.01)\*\* | 0.95 (*p*<0.01)\*\* |
| **Hardness+** | 1 (*p*<0.01)\*\* | 0.79 (*p*<0.01)\*\* |
| **Gingival distance++** | 0.86 (*p*<0.01)\*\* | 0.86 (*p*=0.03)\* |
| **Severity index+**  **DIAGNOdent++** | 0.81 (*p*<0.01)\*\*  0.94 (*p*<0.01)\*\* | 0.67 (*p*<0.01)\*\*  0.98 (*p*<0.01)\*\* |

+ Kappa coefficient, ++ correlation coefficient

\*Significant p<0.05 \*\*Highly significant p<0.01, NA: Non-applicable (not assessed)

**Table S3**. Patients’ demography, social status, saliva test between the two groups at baseline (*p*>0.05).

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| **Patient criteria** | **Group 1**  **(n=41)** | **Group 2**  **(n=39)** | **Over all**  **(n=80)** | ***p* value** |
| **Age (years)**  Mean ±SD  Median (minimum-maximum)  **n (%)**  <65 years  ≥65 years | 65.70 ±12.77  67 (29 – 92)  17 (41.46%)  24 (58.54%) | 64.38 ±9.33  64 (45-82)  21 (53.85%)  18 (46.15%) | 65.06 ±11.18  65 (29 – 92)  38 (47.50%)  42 (52.50%) | 0.26 |
| **Gender** n (%)  Male  Female | 18 (43.90%)  23 (56.10%) | 24 (61.50%)  15 (38.50%) | 42 (52.50%)  38 (47.50%) | 0.11 |
| **Occupation** n (%)  Employed  Non-employed | 16 (39.03%)  25 (60.97%) | 12 (30.77%)  27 (69.23%) | 28 (35.00%)  52 (65.00%) | 0.43 |
| **Attendance to the dentist** n (%)  Regular  Irregular | 28 (68.29%)  13 (31.71%) | 23 (58.97%)  16 (41.03%) | 51 (63.75%)  29 (36.25%) | 0.38 |
| **Conditions causing xerostomia** n (%)  Diabetes  SS  Radiotherapy  High blood pressure | 28 (68.29%)  10 (24.39%)  1 (2.44%)  2 (4.88%) | 23 (58.97%)  11 (28.20%)  4 (10.26%)  1 (2.57%) | 51 (63.75%)  21 (26.25%)  5 (6.25%)  3 (3.75%) | 0.59 |
| **Smoking status** n (%)  Smokers  Non-smokers  Previous smokers | 4 (9.76%)  31 (75.61%)  6 (14.63%) | 9 (23.08%)  28 (71.79%)  2 (5.13%) | 13 (16.25%)  59 (73.75%)  8 (10.00%) | 0.13 |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Removable partial prosthesis** n (%)  Wearing denture  Non-wearing denture | 11 (26.83%)  30 (73.17%) | 11 (28.21%)  28 (71.79%) | 22 (27.50%)  58 (72.50%) | 0.89 |
| **Medication** n (%)  No medication  1-2 medication  3-4 medication  ≥5 medication | 3 (7.32%)  6 (14.63%)  11 (26.83%)  21 (51.22%) | 2 (5.13%)  5 (12.82%)  9 (23.08%)  23 (58.97%) | 5 (6.25%)  11 (13.75%)  20 (25.00%)  44 (55.00%) | 0.90 |
| **Toothpaste used during study** (g)  Mean ±SD | 363.13 ±152 | 357.56 ±129 | 360.31 ±140 | 0.87 |
| **Saliva test** Mean ±SD  **USWS (ml/min)**  Number of sample  **pH**  Number of sample  **Buffer capacity**  Number of sample | 0.09 ±0.05  41  6.67 ±0.51  38  6.00 ±0.93  35 | 0.10 ±0.06  39  6.52 ±0.65  35  5.63 ±0.96±  30 | 0.09 ±0.05  80  6.6 ±0.58  73  5.8 ±0.96  65 | 0.59  0.28  0.12 |

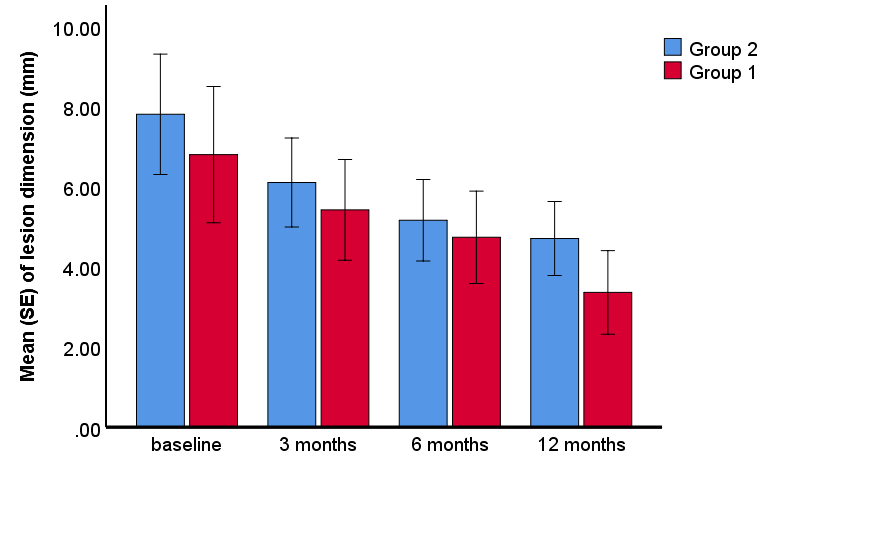
**Table S4.** Mean±SD or number in percentages for plaque index, clinical criteria of root caries and DIAGNOdent measurements and the difference between the two groups at lesion level at baseline.

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| **Variables** | **Group 1**  **n=73 lesion**  **(36 patient)** | **Group 2**  **n=95 lesion**  **(36 patient)** | **Overall**  **n=168 lesion**  **(72 patient)** | ***p* value** |
| **Plaque index** Mean | 1.14 (0.82) | 1.71 (0.87) | 1.47 (0.89) | <0.01\*\* |
| **Roughness** n (%)  Rough surface  Smooth surface | 72 (98.63%)  1 (1.37%) | 95 (100%)  0 | 167 (99.40%)  1 (0.60%) | 0.25 |
| **Cavitation** n (%)  Non-cavitated  0 mm  Cavitated  0.5 mm  1.0 mm  1.5 mm  ≥2 mm | 29 (39.73%)  26 (35.62%)  9 (12.33%)  4 (5.48%)  5 (6.85%) | 36 (37.89%)  33 (34.74%)  15 (15.79%)  4 (4.21%)  7 (7.37%) | 65 (38.69%)  59 (35.12%)  24 (14.29%)  8 (4.76%)  12 (7.14%) | 0.80 |
| **Colour** n (%)  Yellow  Light brown  Dark brown  Black | 0  59 (80.82%)  1 (1.37%)  13 (17.81%) | 2 (2.10%)  58 (61.05%)  7 (7.38%)  28 (29.47%) | 2 (1.19%)  117 (69.64%)  8 (4.76%)  41 (24.41%) | 0.02\* |
| **Dimension**  ≤ 3 mm n (%)  3-6 mm n (%)  6-9 mm n (%)  > 9 mm n (%)    Mean mm | 26 (35.61%)  29 (39.73%)  3 (4.11%)  15 (20.55%)  6.85 ±6.35 | 28 (29.47%)  31 (32.63%)  9 (9.47%)  27 (28.43%)  7.88 ±6.97 | 54 (32.14%)  60 (35.72%)  12 (7.14%)  42 (25.00%)  7.43 ±6.71 | 0.32  0.19 |

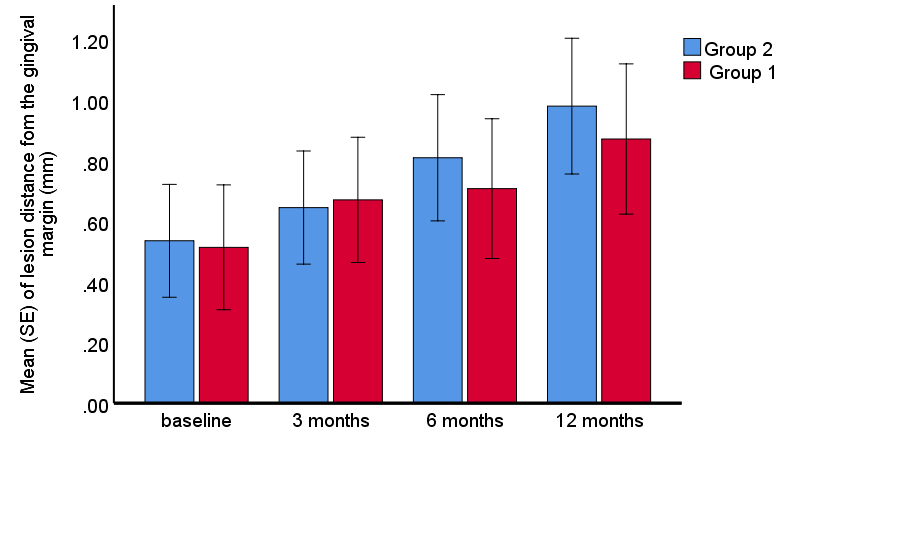
|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Hardness** n (%)  Soft  Leathery  Hard | 0  73 (100%)  0 | 0  95 (100%)  0 | 0  168 (100%)  0 | NA |
| **Gingival distance**  ≤ 1 mm n (%)  > 1 mm n (%)  Meanmm | 65 (89.00%)  8 (11.00%)  0.55 ±0.76 | 85 (89.50%)  10 (10.50%)  0.53 ±0.96 | 150 (89.30%)  18 (10.70%)  0.54 ±0.88 | 0.92  0.38 |
| **Root caries SI** n (%)  SI 0  SI 1  SI 2  SI 3  SI 4 | 0  45 (61.64%)  20 (27.40%)  8 (10.96%)  0 | 0  44 (46.32%)  33 (34.74%)  18 (18.94%)  0 | 0  89 (53%)  53 (31.5%)  26 (14.1%)  0 | 0.12 |
| **DIAGNOdent measurements**  Mean | 42.16 ±25.99 | 51.58 ±27.86 | 47.52 ±27.39 | 0.02\* |

\*Significant p<0.05 \*\*Highly significant p<0.01

**Figure S1.** Meanchanges in lesion dimension during the study.



**Figure S2.** Meanchanges in lesion distance from the gingival margin during the study.

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**Figure S3.** Meanchanges in DIAGNOdent measurements during the study.

