**Figure 1**. Flow chart of the experimental design of the pilot study.

**Figure 2**. Light-microscopic images in incident light of an un-decalcified section from a permanent tooth with caries showing the carious dentine lesion. (White bar = 500 m.)

**Figure 3a-d**. Light-microscopic images in incident light of an un-decalcified section from a permanent tooth with caries; a) before staining; b) after staining for 24 hours with **Food Blue**; c) after treatment with NaCl for 24 hours; d) after treatment with NaOH for 24 hours.

**Figure 4a-d**. Light-microscopic images in incident light of an un-decalcified section from a permanent tooth with caries; a) before staining; b) after staining for 24 hours with **Acid Red**; c) after treatment with NaCl for 24 hours; d) after treatment with NaOH for 24 hours.

**Figure 5a-d**. Light-microscopic images in incident light of an un-decalcified section from a permanent tooth with caries; a) before staining; b) after staining for 24 hours with **Alexa Fluor 594**; c) after treatment with NaCl for 24 hours; d) after treatment with NaOH for 24 hours.

**Figure 6a-d**. Light-microscopic images in incident light of an un-decalcified section from a permanent tooth with caries; a) before staining; b) after staining for 24 hours with **Aminofluorescein**; c) after treatment with NaCl for 24 hours; d) after treatment with NaOH for 24 hours.

**Figure 7a-d**. Light-microscopic images in incident light of an un-decalcified section from a permanent tooth with caries; a) before staining; b) after staining for 24 hours with **Lucifer Yellow CH**; c) after treatment with NaCl for 24 hours; d) after treatment with NaOH for 24 hours.

**Figure 8a-d**. Light-microscopic images in incident light of an un-decalcified section from a permanent tooth with caries; a) before staining; b) after staining for 24 hours with **Food Blue + Lucifer Yellow CH**; c) after treatment with NaCl for 24 hours; d) after treatment with NaOH for 24 hours.

**Figure 9a-d**. Light-microscopic images in incident light of an un-decalcified section from a permanent tooth with caries; a) before staining; b) after staining for 24 hours with **Food Blue + Aminofluorescein**; c) after treatment with NaCl for 24 hours; d) after treatment with NaOH for 24 hours.