Original Research Abstract Template C&R Day 2020

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| SCIENCE AREA: B/BTS, C/CTS, PHS |  |
| TITLE  ALL CAPS; 10 words or less |  |
| Authors  Last Name FirstInitialMiddleInitial (no period) with comma separator between authors:  With Presenter First and Mentor Last & Use superscript # after each author if multiple units are represented |  |
| Affiliation(s)  List Department and College Affiliations for ALL authors; insert superscript # before each unit if more than one unit is listed |  |
| Abstract:  No more than 300 words including section titles  Use Headings as listed  Be sure inserted symbols (Greek letters) display properly. Include Funding Source and IRB and/or ACC Protocol #s if required | Introduction: Hypothesis/Objective: Methods: Results: Conclusions: Funding: IRB and/or ACC Protocol #: |

BTS Example from 2019 Winner

**Dentin biomodification induced by a new source of Proanthocyanidins**

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*1Dept. of Restorative Dentistry, UIC College of Dentistry, Chicago, IL, 2Dept. of Medicinal Chemistry and Pharmacognosy, UIC College of Pharmacy, Chicago, IL*

**Hypothesis:** Dentin biomodification with Rhodiola rosea (Rr) increase mechanical properties of the dentin matrix and consequently become suitable to enhance the adhesion of dental resins to dentin. **Objective:** To determine effects of fractions from Rr on dynamic mechanical properties of dentin matrix and dentin-resin microtensile bond strength. **Methods:** Fractions containing different degree of polymerization of proanthocyanidins from *Rhodiola rosea* extract(Rr*crude*) were produced by centrifugal partition chromatography (Rr*1*, Rr*2*, Rr*3* and Rr*4*. Dentin). Mid-coronal dentin of human molars (0.5 x 1.7 x 7 mm) were demineralized in 10% phosphoric acid and dynamic mechanical properties assessed at baseline and after 1h-treatment with Rr*1*, Rr*2*, Rr*3* and Rr*4* and Rr*crude*; prepared at 0.65 w/v % at pH7.2. Two active fractions (Rr*2* andRr*4*) were selected for resin-dentin microtensile bond strength (TBS) test. Occlusal dentin surfaces (n=3) were etched (35% Glycolic Acid for 15 s), primed (6.5% w/v of Rr*2* andRr*4* for 1 min) and bonded (experimental methacrylate resins). After 24 hr, specimens were tested under tensile at 0.5mm/min. Complex modulus and Tan ∆ were statistically analyzed by 2-way ANOVA and Games-Howell; and TBS by One-Way Anova and Tukey (α=0.05). **Results:** Statistically significant differences were observed between groups Rr*1*<Rr*2* (p=0.011), Rr*1*<Rr*crude* (p=0.011), Rr*2*>Rr*4* (p=0.013), Rr*4*<Rr*crude* (p=0.01), all treatments>Control (p<0.05) in Complex Modulus. The Tan ∆ values increased after treatment with Rr, with Rr*2*>Rr*4* (p=0.012), Rr*4*<Rr*crude* (p=0.012) and all treatments>Control (p<0.001). No differences in TBS were observed between Rr*2* and Rr*4* and both pre-treatments resulted in statistically higher bond strength (p=0.021) as compared to control. **Conclusions:** An average 10-fold increase in the complex modulus of dentin matrix were found for Rr*crude* and Rr*2*. Galloylated PAC Dimer and Trimerare likely the most bioactive PAC compounds. One-minute application of priming solutions from Rr fractions increased dentin-resin bond strength. **Funding:** R01 DE021040. **IRB/ACC protocol:** 2011-0312.

Example in the template next page

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| TITLE  ALL CAPS; 10 words or less | Dentin biomodification induced by a new source of Proanthocyanidins |
| Authors Last Name FirstInitialMiddleInitial (no period) with comma separator between authors: With Presenter First and Mentor Last & Use superscript # after each author if multiple units are represented | Peszek SL1, Leme-Kraus A1, Cavalcante dos Reis M1, Alania Y1, Zhou B2, Chen S-N2, Pauli G2, Bedran-Russo AB1 |
| Affiliation(s)List Department and College Affiliations for ALL authors; insert superscript # before each unit if more than one unit is listed | 1Dept. of Restorative Dentistry, UIC College of Dentistry, Chicago, IL, 2Dept. of Medicinal Chemistry and Pharmacognosy, UIC College of Pharmacy, Chicago, IL |
| Abstract:  No more than 300 words including section titles  Use Headings as listed  Be sure inserted symbols (Greek letters) display properly. Include Funding Source and IRB and/or ACC Protocol #s if required | **Hypothesis:** Dentin biomodification with Rhodiola rosea (Rr) increase mechanical properties of the dentin matrix and consequently become suitable to enhance the adhesion of dental resins to dentin. **Objective:** To determine effects of fractions from Rr on dynamic mechanical properties of dentin matrix and dentin-resin microtensile bond strength. **Methods:** Fractions containing different degree of polymerization of proanthocyanidins from *Rhodiola rosea* extract(Rr*crude*) were produced by centrifugal partition chromatography (Rr*1*, Rr*2*, Rr*3* and Rr*4*. Dentin). Mid-coronal dentin of human molars (0.5 x 1.7 x 7 mm) were demineralized in 10% phosphoric acid and dynamic mechanical properties assessed at baseline and after 1h-treatment with Rr*1*, Rr*2*, Rr*3* and Rr*4* and Rr*crude*; prepared at 0.65 w/v % at pH7.2. Two active fractions (Rr*2* andRr*4*) were selected for resin-dentin microtensile bond strength (TBS) test. Occlusal dentin surfaces (n=3) were etched (35% Glycolic Acid for 15 s), primed (6.5% w/v of Rr*2* andRr*4* for 1 min) and bonded (experimental methacrylate resins). After 24 hr, specimens were tested under tensile at 0.5mm/min. Complex modulus and Tan ∆ were statistically analyzed by 2-way ANOVA and Games-Howell; and TBS by One-Way Anova and Tukey (α=0.05). **Results:** Statistically significant differences were observed between groups Rr*1*<Rr*2* (p=0.011), Rr*1*<Rr*crude* (p=0.011), Rr*2*>Rr*4* (p=0.013), Rr*4*<Rr*crude* (p=0.01), all treatments>Control (p<0.05) in Complex Modulus. The Tan ∆ values increased after treatment with Rr, with Rr*2*>Rr*4* (p=0.012), Rr*4*<Rr*crude* (p=0.012) and all treatments>Control (p<0.001). No differences in TBS were observed between Rr*2* and Rr*4* and both pre-treatments resulted in statistically higher bond strength (p=0.021) as compared to control. **Conclusions:** An average 10-fold increase in the complex modulus of dentin matrix were found for Rr*crude* and Rr*2*. Galloylated PAC Dimer and Trimerare likely the most bioactive PAC compounds. One-minute application of priming solutions from Rr fractions increased dentin-resin bond strength. **Funding:** R01 DE021040. **IRB/ACC protocol:** 2011-0312. |