Original Research Abstract Template C&R Virtual Event 2021

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| SCIENCE AREA: B/BTS, C/CTS, PHS  [Committee may change to fit programmatic needs] |  |
| 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 **Bolded** Headings as listed  Be sure inserted symbols (Greek letters) display properly. Include Funding Source and IRB and/or ACC Protocol #s if required | **Hypothesis and Objective: Methods: Results: Conclusions: Funding: IRB and/or ACC Protocol #:** |

Example in the template next page

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| SCIENCE AREA: B/BTS, C/CTS, PHS  [Committee may change to fit programmatic needs] | B/BTS |
| 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 **Bolded** Headings as listed  Be sure inserted symbols (Greek letters) display properly. Include Funding Source and IRB and/or ACC Protocol #s if required | **Hypothesis and Objective:** 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.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. |