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A study on the synthesis of Polyhydroxybenzoate ester Dendrimers

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Dendrimers was synthesized as various purpose-luminescence device, nano materials and life science, etc-since 1980's. Polyphenol have recently been used as antioxidant, antiphlogistics and antimicrobial activity.

Polyphenol produces singlet oxygen in the presence of hydrogen peroxide in an alkaline medium and emits light. The CL intensities of polyphenol are very weak. Thus *trans*-4-(3-Propionic acid) phenylboronic acid, 4-Biphenyl-boronic acid in the presence of peroxidase or 1-ethyl-3-(3-dimethylamino-propyl)carbodiimide have been used as enhancer for highly sensitive polyphenol CL determination.

This point, we designed new types of polyphenol dendrimers having an increased number of chemiluminophores for high luminescence intensity and hydroxyl groups in periphery to form hydrogen bonds.

Now we report the synthesis of various polyphenol dendrimers. And we report a study about the physical properties(PL, CL, etc) as a result of modification of core and structure change of polyphenol dendrimers.

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Characteristics of seed to calcium-enhanced rice plants expressing the *Arabidopsis* Ca²⁺/H⁺ antiporter geneKyung-Min Kim*, Dai-Hee Kim, Ji-Hee Nam¹, Hyun-Suk Lee¹, Jae-Keun Sohn¹

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This study was carried out to analyze the mineral contents including calcium in brown rice for the rice plants transformed with *CAX1* gene (accession no. U57411). In the previous study the transgenic rice plants over-expressing the *Arabidopsis* Ca²⁺/H⁺ antiporter *CAX1* gene were developed using *Agrobacterium*-mediated transformation method. The calcium contents in brown rice of the transgenic rice plants were ranged from 1.2 to 5.2 times, however, that of donor cultivar. SEM (scanning electronic microscope) analysis showed that the starch structure of transgenic rice comprised round and tightly packed granules compared with wild type.