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Bio-geo hybrid pigment; clay-anthocyanin complex which changes color depending on the atmosphere

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ABSTRACT A natural pigment, anthocyanin, extracted from purple sweet potato was complexed with smectite group layered clay minerals, a synthetic saponite and a natural montmorillonite. The resulting biohybrid with the synthetic saponite exhibited a clear color change between blue and pink upon exposure to acidic (HCl) and basic (ammonia) vapors. The color change is similar to that of anthocyanin molecule in solution which is due to the change in the molecular structure of anthocyanin. The response for the color change was within 10 minutes upon exposure to the vapors and was reversible. The present biohybrid composed of environmentally benign chemically stable and non toxic components is regarded as a possible candidate of environmental sensors and smart pigments.

Key Words; Bio-hybrids, Bio-geo hybrids, Anthocyanin, Color change

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