A009 LPSC

Study of the reaction conditions affecting the physic-chemical properties of melanins.

Abstact:
The research presented is a continuation and an expansion of observations described earlier. Observations were made that the typical conditions to synthesize melanin-like materials from catecholic precursors (air-oxidation in an alkaline environment) leads to the generation of a light-colored substance in addition to the typical dark substances. This light-colored substance appears to be associated with the dark-colored materials through non-covalent interactions. We employed a novel co-precipitation process that allows for a simple separation of this light-colored substance from the dark-colored materials. We studied some of the physic-chemical properties
(color, fluorescence, FT-IR absorbance) of some of the lighter-colored fractions we obtained and discussed these properties in the context of the current knowledge about eumelanin, pheomelanin or neuromelanin. Overall, the current observations strengthen a previous hypothesis that synthetic melanins may be built from at least two types of substances: 1) a soluble, yellow-to-orange colored component, possibly rich in unoxidized precursors and 2) an insoluble, dark component. Our observations do suggest that when studying the chemistry or physiology of melanins one should look beyond the dark colors typically displayed by melanin-like materials.