

Colors in the Dark

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The purpose of this experiment was to create a customized painting kit for blind and visually impaired people using paints made with perfumes and other non-toxic materials extracted from plants and flowers that stimulate the olfactory sense. The extraction step of colors obtained from plants and food colors was carried out with aqueous or alcoholic solvents varying the temperatures and extraction times and we had also taken into consideration the problems of pH, light and heat stability. Extraction tests were carried out, weighing respectively 5, 10, 15 and 20 grams of each plant product and adding volumes varying between 20 and 60 ml of water. The extraction times were 20, 40, 60 minutes. Essential oils were instead obtained from lavender, violet, rose, pine, bergamot using an essential oils steam extractor. We created different paint formulations containing two different types of acrylic resins, rheological modifiers of natural viscosity, stabilizers, antioxidants, colored and perfumed water-soluble-extracts. A total of 7-8 components was mixed to obtain the final product. The range of colors that we could extract were limited to red, yellow, blue, and brown, other colors were obtained by mixing these ones. Experimental results show that the optimal values for the above mentioned operating variables were: 30 ml of aqueous solvent, 5g of raw material and temperature of 30 °C. These scented color formulations were created taking into account the non-toxicity of the product, curing time of the polymer, stability and intensity of colors and the perfume releasing speed.

Awards Won:

Drug, Chemical &

Associated Technologies Association (DCAT): Award of \$3,000.