Think Ink

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Ink can be made from different plants and contain additives to intensify color. Using a spectrophotometer, I tested combinations of 5% acetic acid, gum Arabic and potassium aluminum sulfate to see which would produce and maintain color intensity over time in beetroot, blueberry, and cherry ink. I made dye baths of 240 ml of water and 120 grams of organic material (beetroots, blueberries, and cherries) containing 15 ml of 5% acetic acid. I then separated ink batches into four portions of 10 ml each. One as is, the second with 0.625 grams of gum Arabic, the third with 1.25 grams of potassium aluminum sulfate, and the fourth with both gum Arabic and potassium aluminum sulfate. I added essential oil to each as a preservative. I tested the inks with a spectrophotometer initially, after 30 days, and after 60 days. Cherry ink had the highest spectrophotometer reading in most combinations of additives, followed by blueberry and beetroot. The additive combination with the best results was 5% acetic acid and gum Arabic. Over time, beetroot ink went from 0.994 to 1.030 to 1.507, blueberry ink went from 1.122 to 1.263 to 1.361 and cherry ink went from 1.305 to 1.587 to 1.641. Ink made with acetic acid and gum Arabic had the best color intensity over time. Ink made with acetic acid, gum Arabic, and potassium aluminum sulfate was second. The organic material with the best color intensity was cherries.

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