Acid Rains: Indication of Acidity Based on Flowers Pigments

Chepovskii, Aleksandr

Vorzonina, Polina

Unfortunately the technical progress inevitably generates a lot of massive pollution, such as acid rains. There are not so many ways to indicate it. Most of the methods are expensive, and do not show negative effects on living organisms. The purpose of our research was to create the reliable biological method based on flowers pigments to indicate the effect of acid rains or acidity pollution. We prepared the extracts of petals of 20 wild and garden flowers of different colors. Then we added weak citric acid and alkiline solutions (sodium bicarbonate) to the extracts and obtained their spectra with the spectrophotometer. The blue and red flowers extracts in acid solutions showed the shift in spectra while the yellow extracts did not. Yellow and blue pigments indicated the good reaction too. Red and blue flowers petals changed their color to pink after adding acid and to yellow after adding alkali. It was shown that widespread and popular red and pink roses can be good biological indicators for the acidity because the extracts of their petals changed their colors in weak acid and alkali solution. The filter paper impregnated with the roses extracts showed the same effect: they changed their color after acids or alkali drops. This new pH- indicator paper can be used to monitor acid rains in winter. Moreover, the indicators showed a quantitative result: higher acidity caused greater effect. The recommendations to use roses for the detection of acidic or alkaline rains were developed. In conclusion I want to say that reliable biological methods based on flower or floral pigments to indicate the environment acidity were created.

Awards Won: