DETERMINATION OF OPTICAL PROPERTIES OF COLORANTS IN SOME CONFECTIONERY PRODUCTS

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Currently, synthetic dyes are widely used in the production of food products, pharmaceuticals and beverages. This, in turn, requires constant control over the quantity and quality of these dyes that can be added.[1,2]

In this article, selected blue, black, red and yellow confectionery products were taken for analysis and first the light reflection properties and then the optical properties of their solutions were analyzed using a spectrophotometer.[3,4]

The aim of the experiment was a qualitative and quantitative analysis of the dyes contained in selected colored confectionery products. The resulting confectionery products consisted of red, yellow, blue, and black dyes, as well as natural beetroot dye. Each product was dry-weighed on a precision analytical balance and ground into powder. The optical properties of the powder were preliminarily analyzed using an X.Rite.eye one pro instrument. The results are presented in the table.

As can be seen from the resulting table, we can see that the highest light reflectance coefficient (R) belongs to the red color. At λ =700nm, R_{red}=0.6802, at λ =700nm, R_{blue}=0.35098, at λ=700nm, R_{black}=0.34273. It was found that the R values of blue and black are close to each other.

λnm	R_1 yellow	R_2 red	R_3 blue	R_4 black
350	0,05192	0,13828	0,16087	0,09114
400	0,04246	0,13468	0,14675	0,0834
450	0,0394	0,12166	0,15011	0,07763
500	0,091	0,06307	0,29578	0,04789
550	0,22338	0,06031	0,26511	0,04628
600	0,45159	0,35653	0,08535	0,07414
650	0,46126	0,6014	0,06472	0,05628
700	0,48562	0,6802	0,35098	0,34273