

The paper presents the results of a study of the dynamics of the optical properties of apples of different varieties during their storage in a refrigerator.

All research samples were conditionally divided into 4 groups:
group 1 - apples without packaging and when exposed to refrigerator light;
group 2 - apples without packaging and when stored in the dark;
group 3 - apples in a transparent plastic bag and exposed to the light of the refrigerator;
group 4 - apples in a transparent plastic bag and when stored in the dark

Studies of the dynamics of the optical properties of apples of different varieties during their storage in the refrigerator were carried out in 3 stages:
1) at the first stage of the research, visual control of changes in the surface of apples of different varieties under different storage conditions was carried out;
2) at the second stage, the optical properties of apples of different varieties were studied during their storage in the refrigerator using fluorescence analysis;
3) at the third stage, the control of the microstructure of apples was carried out

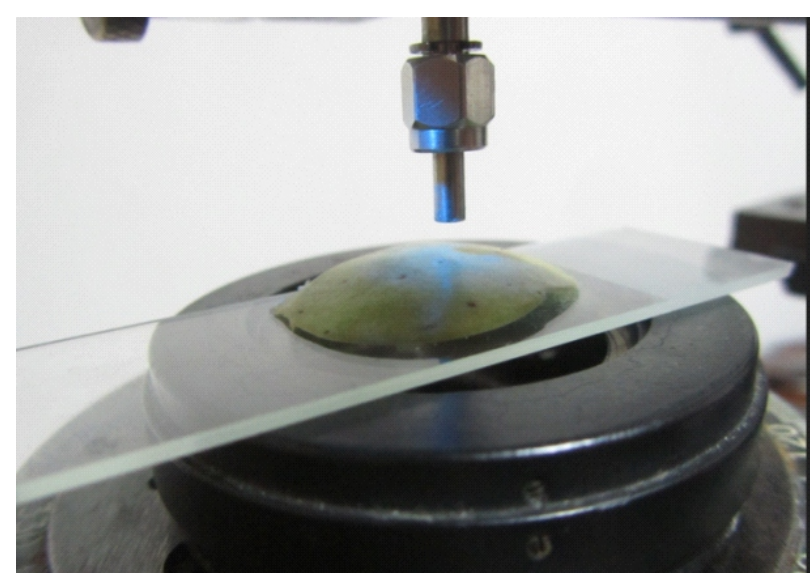
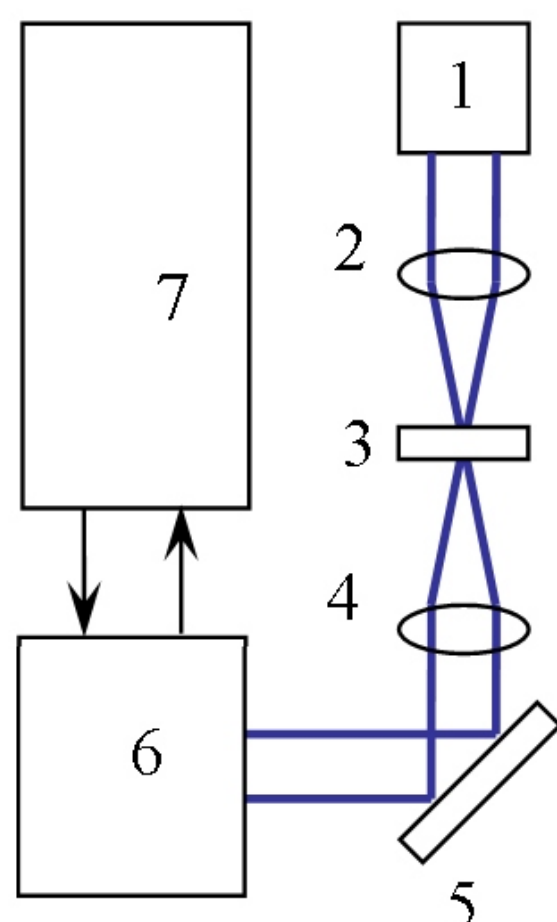


Figure 1 - Experimental stand, fluorescent



- 1 - lamp,
- 2 - condenser,
- 3 - object,
- 4 - lens,
- 5 - swivel mirror,
- 6 - camera,
- 7 - computer

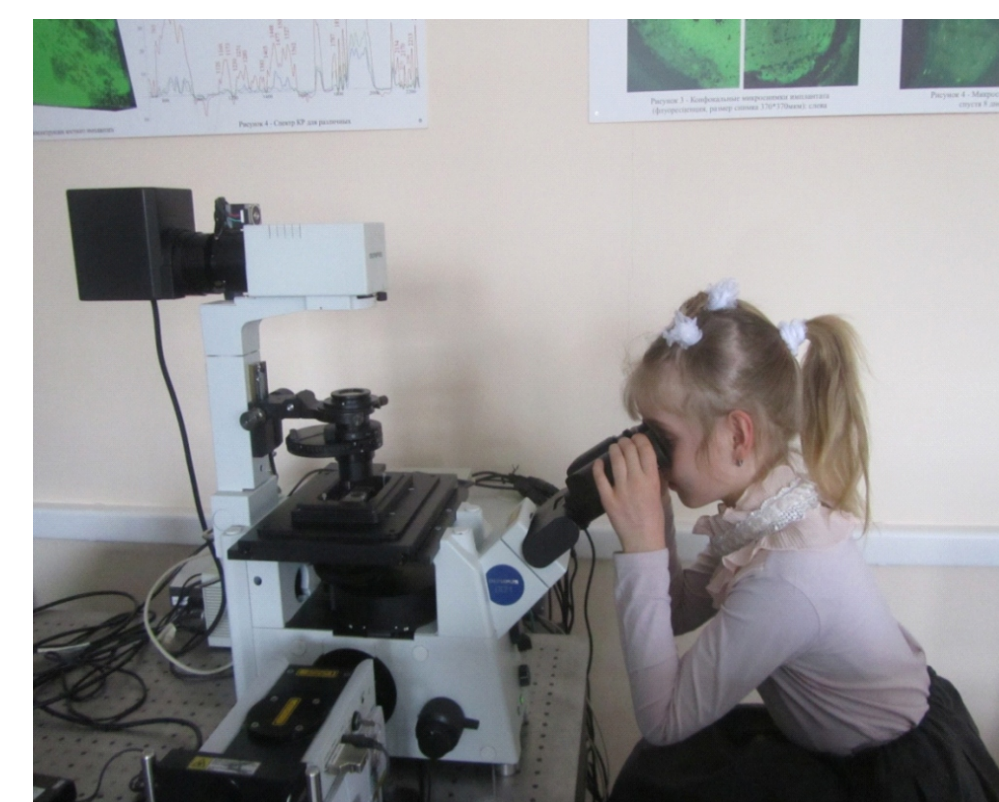
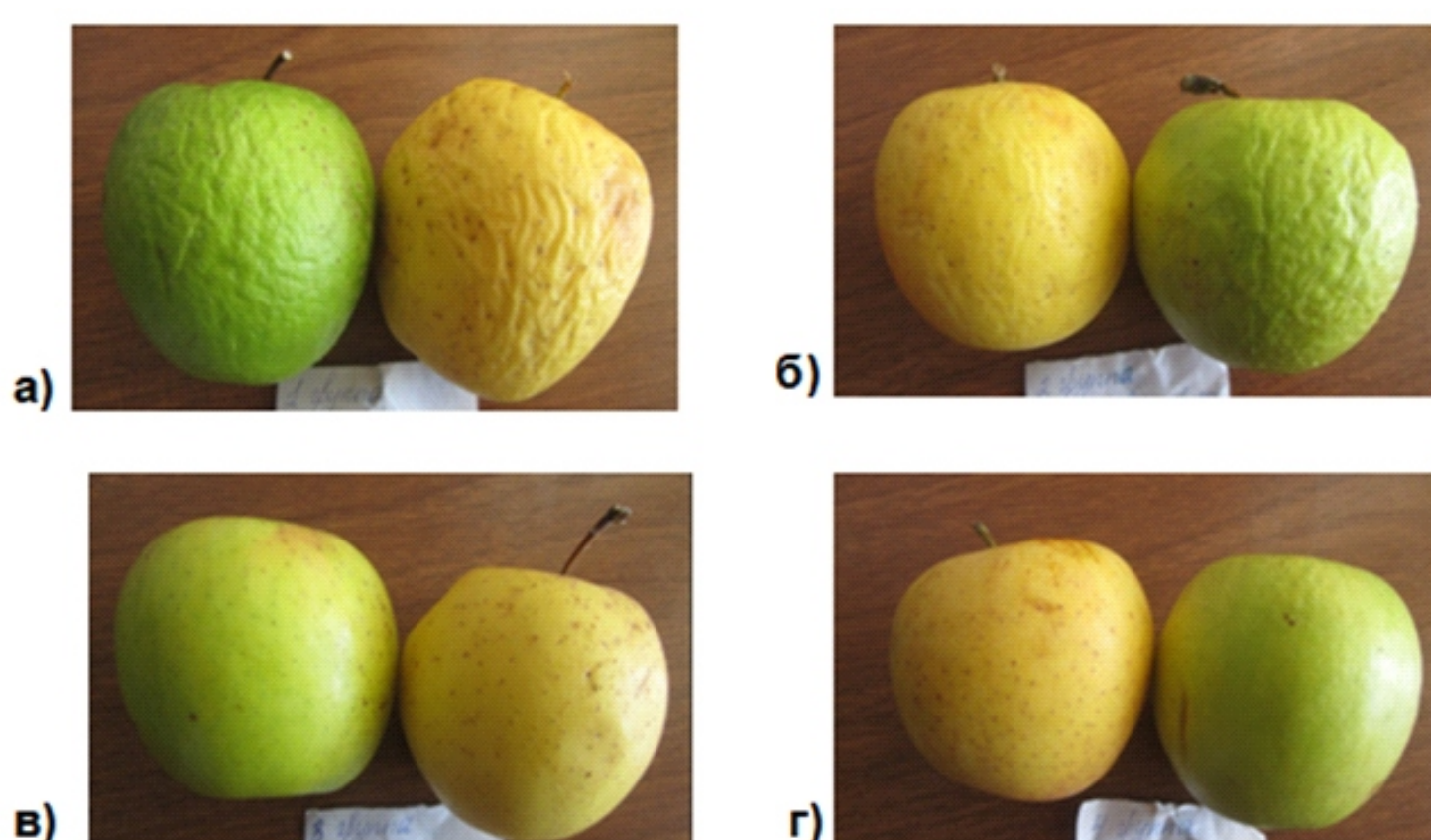


Figure 2 - Microscope



It can be seen from the figure that when storing apples without packaging (groups 1 and 2), wrinkling of the skin of apples occurs, which, accordingly, also affects the quality of these products. Moreover, the lighting in the refrigerator enhances the wrinkling of the skin, which is clearly seen in group 1.

Visual changes in the objects of study in groups 3 and 4 are not clearly distinguishable. However, group 3 shows a small defect in the yellow apple.

The largest maxima of the fluorescence amplitude of apples appear for the 4th group under study

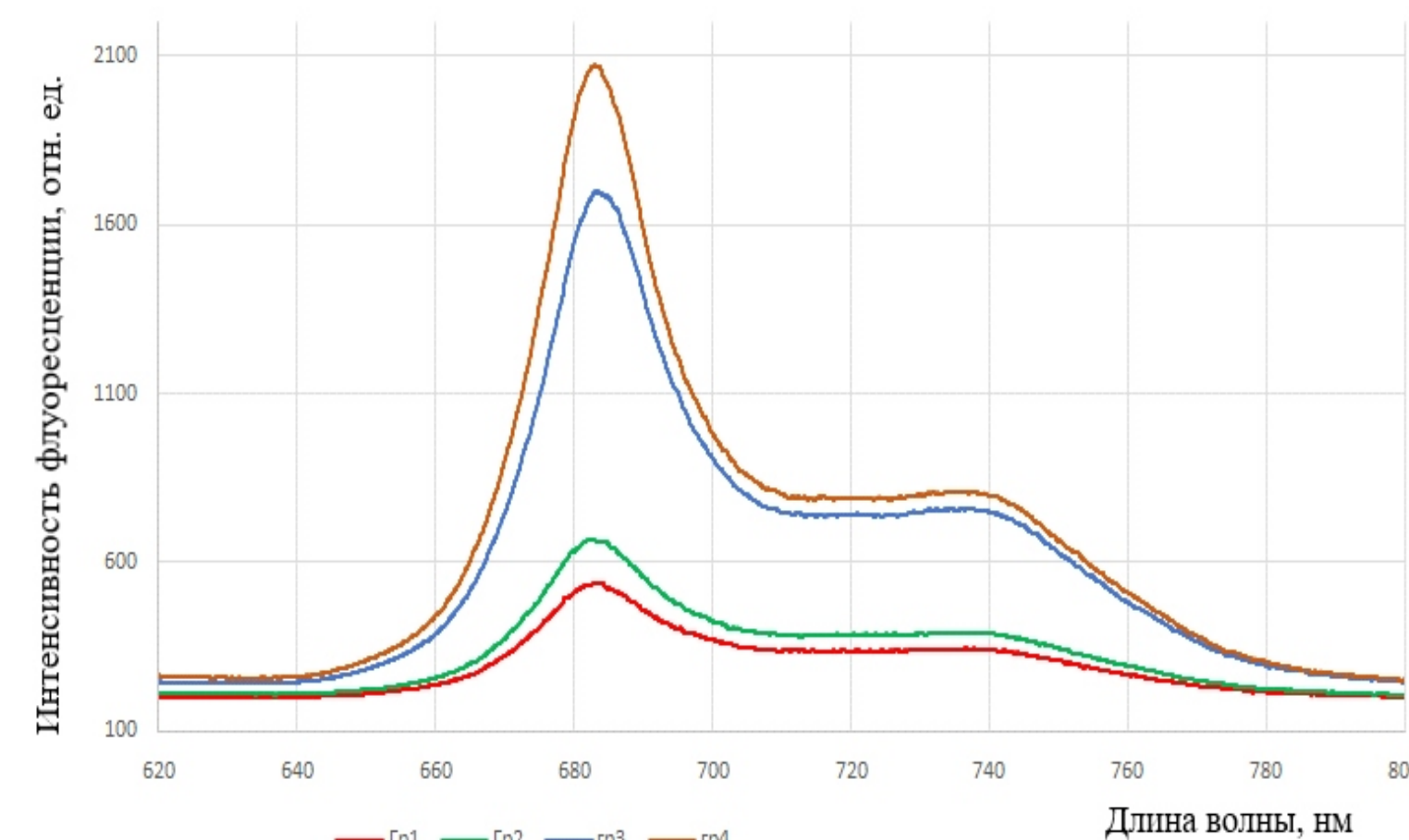
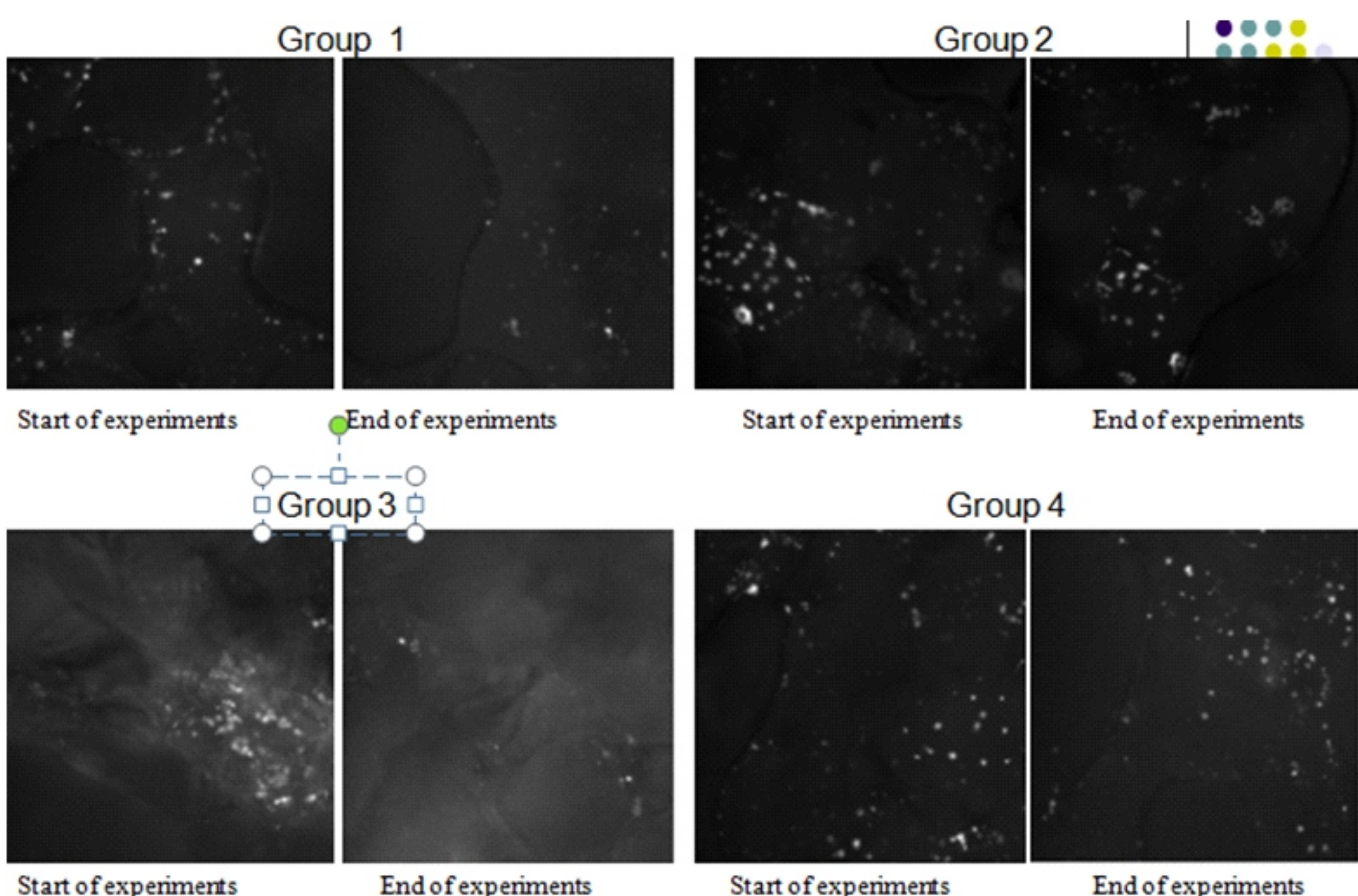


Figure 4 - Fluorescence of the studied groups

Figure 3 - Research objects after 2 months of storage in the refrigerator:

a) 1 group; b) 2nd group; c) 3rd group; d) 4th group



As a result of experimental studies using the fluorescent method and fluorescent microscopic analysis, it was found that the amount of fluorescent chlorophylls in the skin of apples is maximally preserved in the group of apples that were stored in a transparent plastic bag and in the dark, which indicates that the method of storing apples in packaging and in the absence of light is the most optimal and allows you to save all the useful properties of apples. With other storage methods, a decrease in chlorophylls in the skin of apples and wrinkling of the skin is observed.