minimum and the most stable conformers, all stationary points on the surface of the potential energy of molecules were found and analyzed. The PM7 method is used to find optimized geometric configurations, total energy of molecules, electronic properties and enthalpy of substance formation [1]. Gauss View 06 and ChemCraft 1.7 were used to visualize the results.

Complete quantum-chemical modeling of equilibrium geometry and electronic structure of sulforaphane molecule

Full optimization and calculation of the electronic structure were carried out by the nonempirical method of density functional theory (DFT/B3LYP) in the basis 6-31G*. This method is used to calculate optimized geometries, electron absorption spectra, values of total energy and heat of formation and is used by us to calculate the electron absorption spectrum of a sulforaphane molecule [2]. The electron spectrum of the sulforaphane molecule is calcu-lated for 20 single-electron excitations in the region of 118–204 nm.

The theoretical absorption spectrum of an optimized sulforaphane molecule in a solvent is calculated using the Gaussian 16 software package, using the theory level TDB3LYP/6-311G*. The averaged scaling factor of the program in the calculation of UV spectra is 0.99. A solvaton model was used to account for water, which does not take into account the microscopic structure of the solvent in order to save machine time in calculations.

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REDEVELOPMENT AND THE ENVIRONMENTAL COMPONENT OF SECURITY

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The main problems and limitations of redevelopment are design solutions, efficiency, economic and environmental component.

The main problems and limitations that arise during redevelopment include:

– difficulties in combining design decisions with urban development plans for the development of adjacent areas;

– difficulties in transporting the territory the unsuitability of retained buildings and structures for new functions or technologies;

– dilapidation of fixed assets; the possibility or impossibility of increasing the load on existing communications, networks and infrastructure;

– economic issues of the concept (investment efficiency); environmental problems of the site and the impact of the facility on adjacent territories.

The environmental criteria of building structures, decoration materials, household and industrial appliances include three main groups: safety for human health of materials, their resistance to external factors, their ability to neutralize the side effects of operation, as well as, of course, the safety of their operation.

Finally, it is important to remember that not only the materials from which the products are made must be safe, but also the process of its operation. Today, modern safety standards imply not only protection against harmful emissions or electromagnetic fields, but also the silent operation of household appliances, because the so-called noise pollution is a common cause of hearing loss and nervous disorders in residents of large cities. Sounds whose intensity does not exceed 35 dBA are considered to be absolutely harmless from this point of view, i.e. the volume of the human voice. At night, extraneous noise should not be louder than 27-28 dBA, otherwise they can disturb sleep. This characteristic is especially relevant for air conditioners, which in hot weather do not turn off around the

clock. Thus, the noise level from the operation of some devices of Daikin and Mitsubishi companies does not exceed 22 dBA, which meets the most stringent environmental requirements.

So, today manufacturers offer many environmentally friendly types of construction products and equipment made from safe materials that are not dangerous during operation and allow you to maintain a favorable atmosphere. The designer's task is to find a reasonable compromise and choose products in this limitless sea of products that, as much as possible meeting the design plan, will be economically and environmentally justified.

REGENERATION IN CULTURE OF REMONTANT RASPBERRY LEAVES EXPLANTS

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The effect of synthetic preparations with a cytokinin type of action of 6-benzylaminopurine (BAP) at a concentration of 0,3 mg / L and thidiazuron (TDZ) at a concentration of 0,1 mg / L on the induction of regeneration processes in the culture of leaf explants of remontant raspberries was assessed. It was shown that low concentrations of TDZ are more effective than BAP.

Keywords: remontant raspberry, BAP, TDZ, leaf explants.

In the Republic of Belarus, about 10 % of fruit and berry plantations are occupied under raspberries, and every year the area is growing. A special place among the varieties of Rubus idaeus L. is occupied by remontant forms unique berry plants that can fruit on annual shoots. With the increase in the planting area, raspberry remontant now acquires the status of an independent industrial culture. In this regard, there is a need to improve the existing technology for the reproduction of raspberries, taking into account the biological characteristics of varieties of the remontant type [1]. A promising direction is the development of approaches to initiate morphogenesis processes in in vitro culture of leaf explants of remontant forms of raspberries (Rubus idaeus L.), the physiological features of the development of which cause an extremely low ability to vegetative propagation, which in turn creates a lack of high-quality planting material. In vitro technology is today the main component of modern biotechnology in the production of virus-free healthy planting stock.

The purpose of the study was to evaluate the effect of two synthetic drugs with a cytokinin type of action on the induction of regeneration processes in the culture of leaf explants of remontant raspberries.

As explants, the leaves of a complex leaf of two varieties from the in vitro collection of test plants of the Department of Zoology and Genetics of BrSU named after A.S. Pushkin. To accelerate callus-forming processes on the lower surface, several incisions with a scalpel are required. Expansions prepared in this way were obtained on the basis of a nutrient agar medium prepared as prescribed by Mussige and Skoog, as well as with additional phytohormones: 6-benzylaminopurine (BAP) at a concentration of 0,3 mg / l, thidiazuron (TDZ) at a concentration of 0,1 mg / l The cultivation of leaf explants continued for 4 weeks in a chamber for plant growth at a temperature of 19 °C and periodic illumination (16 hours a day and 8 hours a night) with an intensity of 3000 lux.

The results obtained using leaf explants of raspberry varieties of the Polish selection Polyana and Polka confirmed the idea of the high efficiency of low concentrations of TDZ compared with BAP (Fig. 1).

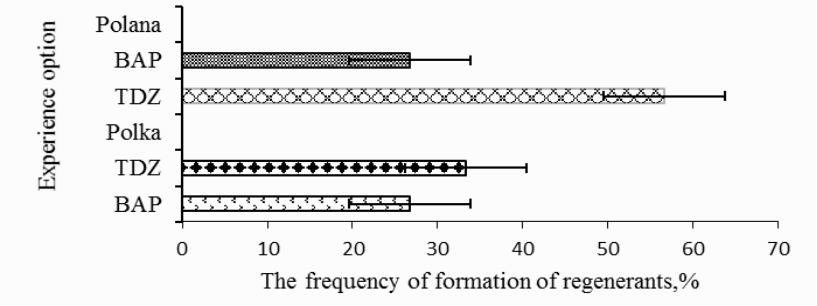

Fig. 1. – The frequency of regeneration in the culture of leaf explants of two varieties of remontant raspberries

Thus, the frequency of formation of regenerated plants (in%), calculated in relation to the number of explant passage, under the influence of TDZ at a concentration of 0,1 mg / l in the Polyana variety was 56,67±9,05, in the Polka variety – 33,33±12,17, which is higher compared to BAP at a concentration of