mechanisms of apoptosis and platelet aggregation / disaggregation by acting on P2Y1 and P2Y12 purinoreceptors, and acts as an alarmone in the cellular response to stress. Extracellular Ap4A acts through purinoreceptors and, possibly, through their own specific receptor structures.

The experiment revealed that the disaggregation properties of Ap4A are dose-dependent. At concentration of $2{,}44\times10^{-7}$M, Ap4A demonstrate a slight inhibition of the degree and rate of ADP-induced platelet aggregation to equal values in both groups (the degree and rate of aggregation during physiological pregnancy was 7,84±3,21% and 9,1 [6,1–12,6]%/min; during pre-eclampsia – 8,17±3,26 % and 8,8 [5,2–12,6]%/min, respectively). Adding Ap4A (7.32×10^{-7}M) significantly reduced the functional activity of platelets caused by ADP in women with physiological pregnancy, as well as in pregnant women with preeclampsia. Moreover, the degree and rate of aggregation were: during physiological pregnancy – 1,10 ±0,64 % and 1,4 [0,85–2,9] %/min; during pre-eclampsia – 0,76±0,50 % and 0,95 [0,55–1,25]%/min, respectively. The greatest inhibitory effect of diadenosine-5',5'''-P1,P4-tetraphosphate in ADP-induced platelet aggregation was achieved at a concentration of 2,44×10-6M (the degree and rate of aggregation during physiological pregnancy was 0,24±0,21 % and 0,35 [0,2–1,2]%/min; with preeclampsia – 0,33±0,26 % and 0,6 [0,4–0,95]%/min, respectively). The experimental data allow us to conclude that Ap4A can be used to correct increased platelet aggregation ability of pregnant women with pre-eclampsia.

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SYNTHETIC ANALOGS OF NATURAL PHENOLIC ANTIOXIDANTS AND ANTIMUTAGENS FROM RASPBERRY AND GINGER

M. Bandarenko

Belarusian State University, ISEI BSU,
Minsk, Republic of Belarus
375291565472@yandex.by

The object of the study is unsaturated ketones obtained by aldol-croton condensation of aromatic alde-hydes with acetone and pinacoline. The aim of the work is to develop a preparative method for obtaining raspberry ketone, ginger ketone and their structural analogues from unsaturated synthetic precursors.

Keywords: the raspberry ketone , zingerone, phenols, hydrogenation.

The problem of oncology diseases origin caused by various of factors, and particularly by radioactive chemical pollution is of vital importance. In view of this, the embrace of bio-effecting agents and examining their influ-ence on organism is growing. Two carbonyl compounds were considered and the synthesis technique was improved.

Raspberry ketone and zingerone are well-known natural substances isolated from raspberry and ginger which became the objects of both laboratory studies and commercial production. Investigations of the biological activity of these phenolic compounds, in particular antioxidant and anti-inflammatory actions, cancer prevention, influence on the mutagenesis and metabolism are still ongoing [1–2]. Zingerone can potentially be used for the se-lective protection of the normal tissues in the course of the radiotherapy of tumor diseases. Also zingerone and re-lated compound dehydrozingerone found to inhibit growth of the colon cancer cells [3–4].

Now we report an efficient synthetic way for the preparation of zingerone, raspberry ketone and different structural analogs of these natural compounds based on the aldol condensation. Simple procedure for the selective hydrogenation of the double bonds was developed [5].

Readily available products of the aldol condensation of 4-hydroxybenzaldehyde or vanillin with acetone were hydrogenated in the presence of cheap nickel boride to give raspberry and zinger ketones, respectively, in good yield. The advantage of the reported procedures is that a two-step sequence (preparation of catalyst and hydro-genation) can be carried out in a one pot reaction and in a short time.

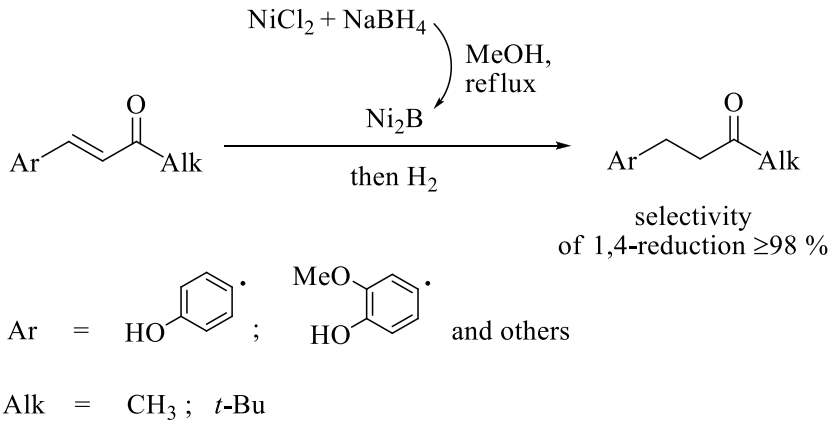

Fig. 1. – The aldol condensation

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EPIDEMIOLOGICAL ANALYSIS OF THE INCIDENCE AND THE PREVALENCE OF MENTAL DISORDERS IN THE REPUBLIC OF BELARUS FROM 2010 TO 2017 YEAR

K. Bartosh, I. Lazar

Belarusian State University, ISEI BSU,
Minsk, Republic of Belarus
kbartosh19@gmail.com

The research is relevant because of the fact that mental disorders are among the most common human diseases nowadays. At least 1 out of 10 people on the planet has a mental disorder. They account for more than 10 % of the total economic losses caused by human diseases [3]. The incidence rates of the population of the Republic of Belarus by mental disorders from 2010 to 2017 year are analyzed in this research.

Keywords: mental disorders, psychoses, schizophrenia, non-psychotic mental disorders, mental retardation, trends.

The purpose of the work was to analyze the dynamics of the incidence and the prevalence [1] of the population of the Republic of Belarus by the most common types of mental pathology from 2010 to 2017 year.

The results of the analysis indicate the controversial nature of mental disorders among the population of Belarus .

The incidence of mental disorders in 2010–2017 is characterized by an unstable upward trend (R2 = 0,459). There is a pronounced increase of the incidence of psychoses (R2 = 0,852). At the same time, there is a lack of any trend of the incidence of schizophrenia (R2 = 0,21). There is an unstable trend towards a decrease of the incidence of non-psychotic mental disorders (R2 = 0,514). And at the same time, there is an unstable trend towards an increase of the incidence of mental retardation (R2 = 0,435).

The ups and downs of the incidence of mental disorders in various regions of the Republic of Belarus do not have a clear temporal correspondence; they are erratic. So, we can conclude that this incidence is not directly related to the economic or political situation of the Republic of Belarus, but is due to other determining factors.