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Bekmambetov T.R., Tonkovtseva V.V., Litvinchuk N.I., Yarosh A.M. Essential oil of *Salvia Sclarea* L. and its effect on psychophysiological state of people breathing it in different concentration during exercise // *Bull. of the State Nikit. Botan. Gard.* – 2015. – № 117. – P. 23-29.

Essential oil of *Salvia Sclarea* L. provokes euphoric effect during prolonged medium exercise; on the background of physical activity it is pronounced only in case of the highest study concentrations – 1,0 and 2,0 mg/m³. Essential oil of *Salvia Sclarea* L. possesses hypotensive and tachycardial effects as well.

Key words: *essential oil, Salvia Sclarea L., eastern dances, exercise load, psychoemotional state, WAM test, human psychophysiological state; nervous system; cardiovascular system.*

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ESSENTIAL OIL OF *HELICHRYSUM ITALICUM* AND ITS EFFECT ON PSYCHOPHYSIOLOGICAL STATE OF ELDERLY PEOPLE BREATHING IT IN LOW CONCENTRATION

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Introduction

Nevertheless essential oils (EO) are used extensively in aromatherapy, there are ones requiring more investigation [6]. Properties of *Helichrysum italicum* (Rhot) Guss. EO concerning central nervous system are to be examined more thoroughly. We held studies of its effect (1 mg/ m³) on human central nervous system before [5]. It was found out, that *Helichrysum italicum* mainly influences on psychological tone of body: improvement of well-being, rise of vivacity and attentiveness level and tension slowdown. Neuromotor process rate, velocity and accuracy of simple information processing (proof test), short-term memory, mood and anxiety parameters didn't try any effect of *Helichrysum italicum* EO [5].

The principal point is to minimize load on body in the course of aromatherapy, what is possible if to reduce EO concentration in the atmosphere.

Objective of this research is to study effect of *Helichrysum italicum* EO of 0,1 mg/m³ on some functions of human central nervous system and cardiovascular system.

Objects and methods of the research

A group of 20 people, mainly women aged by 55-80 years were involved into this study. Control group was a similar group by composition and size. Tested people of the control group were having a rest for 20 minutes listening psychorelaxation record. In experimental group participants in the same room during the same time listening the same psychorelaxation record, but that room was concentrated with *Helichrysum italicum* EO (0,1 mg/m³). Tests were held before and after procedures.

To define procedures effect on cardiovascular system the following parameters were measured: heart rate (HR), blood pressure systolic (BPS) and blood pressure diastolic (BPD).

While proof test, WAM test and tests that measure thinking rate were used to determine EO effect on nervous system [1, 3, 4].

Findings were processed statistically applying t-criterion by Student [2].

Results and discussion

According to marks of WAM test, initially control and experimental groups didn't have any significant differences (table 1).

After psychorelaxation session control group didn't demonstrate any changes of WAM test parameters.

After procedure of aromapsychorelaxation experimental group presented significant reduction of tension, tendency to rise capacity to work, vivacity and attentiveness. On the whole aromasession with *Helichrysum italicum* EO improved psychoemotional state of participants, mainly by tone parameters.

Table 1

Effect of *Helichrysum italicum* on psychoemotional state of tested people (according to WAM test parameters, standard units)

Parameter	Eperimental group initially	Control group initially	Experimental group after procedure	P ex b/a<	Control group after procedure
General condition	165,25±4,69	155,90±7,69	167,35±5,07		163,30±5,55
Well-being	163,00±5,41	160,45±6,57	165,65±5,78		163,40±5,36
Mood	163,20±5,89	158,60±6,23	166,00±5,10		162,95±5,81
weakness –capacity to work	159,70±5,60	151,90±8,03	166,45±5,09	,08	158,25±5,69
Tension – relaxation	143,75±6,26	151,90±6,96	159,805,45	,002	156,15±5,08
Inertness – vivacity	155,90±6,60	153,85±7,47	164,25±5,86	,06	160,85±5,77
Absent-mindedness – attentiveness	142,35±9,66	142,25±8,71	146,70±9,65	,10	149,05±7,38

According to psychoemotional state of tested people by anxiety scale both groups didn't have any differences (table 2).

After psychorelaxation session in control group there were no any significant changes of test parameters.

After aromapsychorelaxation procedure experimental group didn't demonstrate any changes of the test parameters as well.

Table 2

**Effect of *Helichrysum italicum* on psychoemotional state of tested people
(by scale of anxiety and depression, standard units)**

Scale	Experimental group initially	Control group initially	Experimental group after procedure	Control group after procedure
Anxiety	6,25±0,94	6,20±0,87	5,80±0,80	5,60±0,98
Depression	6,50±0,90	6,70±0,89	6,45±0,84	6,65±0,85

As a result of procedures effect on mental capacity by proof test (digital data) initial difference between control and experimental groups isn't significant (table 3).

After psychorelaxation in control group there weren't any changes.

Procedure of aromarelaxation in experimental group didn't provoke any changes as well.

Table 3

Effect of *Helichrysum italicum* EO on mental capacity (according to proof test data)

Parameter	Group	Initially	After procedure
Rate 1, sign/min	control	307,30±14,71	324,80±17,13
	experimental	314,60±23,55	335,40±26,74
Mistakes 1, signs	control	2,05±0,69	3,00±0,70
	experimental	1,95±0,36	2,35±0,67
Rate 2, sign/min	control	314,65±18,18	292,30±22,35
	experimental	302,90±31,24	309,40±28,22
Mistakes 2, signs	control	3,20±1,12	3,85±1,03
	experimental	2,15±0,67	1,60±0,37

Initially complex mental processes test (filling the missing letters in words) didn't get any significant difference between data of control and experimental groups (table 4). As a result of psychorelaxation procedure a number of mistakes tended to rise in a control group. After aromapsychorelaxation there were no any significant changes in the experimental group.

Table 4

Effect of *Helichrysum italicum* EO on thinking rate (data of filling the missed letters test)

Parameter	Group	Initially	After procedure	Pc b/a<
Words, units	control	23,10±1,42	23,10±1,52	
	experimental	26,35±2,21	25,40±2,29	
Mistakes , units	control	1,10±0,28	1,75±0,45	0,08
	experimental	1,30±0,27	1,20±0,27	

Initially before procedures there were no any significant differences between values of BP and HR in control and experimental groups (table 5).

After session of psychorelaxation values of BP and HR in control group didn't differ from initial data.

In the experimental group session of aromapsychorelaxation provoked reduction of BPS and HR a lot. In this case finite value of BPS in the experimental group was much lower than in control group.

Variations of BPD aren't significant.

Table 5

Effect of relaxation procedure held with *Helichrysum italicum* EO on BP and HR

Parameter	Experimental group initially	Control group initially	Experimental group after procedure	Pex b/a<	Control group after procedure	Pex/c after<
BPS, mm of Mercury	125,25±4,01	130,80±4,22	116,25±3,21	,001	129,30±4,20	0,02
BPD, mm of Mercury	76,55±1,86	77,75±1,86	74,40±2,32		76,70±2,09	
HR, bpm	72,35±1,67	70,85±1,36	69,35±1,25	,004	70,40±1,38	

Therefore *Helichrysum italicum* EO being in low concentration mainly affected on psychological tone of body: rise of vivacity, attentiveness and capacity to work. Only anxiety reduction was significant.

Much more pronounced effect of *Helichrysum italicum* EO (low concentration) concerned cardiovascular system: significant reduction of BPS and HR values.

Conclusions

1. *Helichrysum italicum* EO increased psychological tone of test participants a little.
2. *Helichrysum italicum* EO almost didn't affect on mental capacity of test participants.
3. *Helichrysum italicum* EO possesses hypotensive and bradycardial effects.

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Tonkovtseva V.V., Koval Ye.S., Bekmambetov T.R., Yarosh A.M. Essential oil of *Helichrysum Italicum* and its effect on psychophysiological state of elderly people breathing it in low concentration // Bull. of the State Nikit. Botan. Gard. – 2015. – № 117. – P. 29 – 33.

Helichrysum Italicum essential oil in concentration 0,1 mg/m³ and its effect on psychophysiological state of elderly people were investigated in terms of the research. Low concentration of *Helichrysum Italicum* essential oil mainly affected on psychological body tone, as a result - increasing of vivacity, attentiveness and efficiency level. Its influence in the same concentration occurred more pronounced concerning cardiovascular system: significant reduction of BPS (blood pressure systolic) and HR (heart rate).

Key words: *essential oil, aroma session, Helichrysum Italicum, psychorelaxing record, mental capacity, psychoemotional state.*

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ESSENTIAL OIL OF *LAVÁNDULA ANGUSTIFÓLIA* AND ITS EFFECT ON PSYCHOPHYSIOLOGICAL STATE OF ELDERLY PEOPLE BREATHING IT IN LOW CONCENTRATION

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Introduction

Lavandula angustifolia Mill. essential oils (EO) are used extensively in aromatherapy [6, 9]. It possesses antidepressive and stress-limiting effects [6-9]. It was demonstrated that in case of concentration 1 mg/m³ *Lavandula angustifolia* EO improves general condition of tested people, reduces personality anxiety, and raises mental capacity [5]. Important task is to minimize load on body in the course of aromatherapy, what is possible if to decrease concentration of that essential oil. It especially concerns elderly people. But in case of lower concentration aromatherapy effect can be not so pronounced.

Objective of this paper is to investigate *Lavandula angustifolia* EO on some functions of central nervous system in low concentration.

Objects and methods of the research

A group of 20 people, mainly women aged by 50-80 years were involved into this study. Control group was a similar group by composition and size. Tested people of the control group were having a rest for 20 minutes listening to psychorelaxation record. In experimental group participants were in the same room during the same time listening to the same psychorelaxation record and breathing *Helichrysum italicum* EO till the finite concentration (0,1 mg/m³). Tests were held before and after procedures.

To define procedures effect on cardiovascular system the following parameters were measured: heart rate (HR), blood pressure systolic (BPS) and blood pressure diastolic (BPD).

While proof test, WAM test and tests that measure thinking rate were used to determine EO effect on nervous system [1, 3, 4].

Findings were processed statistically applying t-criterion by Student [2].

Results and discussion

According to marks of WAM test, initially control and experimental groups didn't