International Journal of Botany Studies
ISSN: 2455-541X, Impact Factor: RJIF 5.12
www.botanyjournals.com
Volume 2; Issue 2; March 2017; Page No. 07-09

The results of phytochemical analysis, and therapeutic features of biomorphological species *Phlomis Salicifoliya* regel, genus *Phlomis* L. flora of the nakhchivan autonomous republic

RA Alakbarov

PhD in Biology, Associate Professor Institute of Bioresources of ANAS Nakhchivan Department, Azerbaijan

Abstract
On the basis of the results of research conducted during the 2014-2016 period, conducted a taxonomic analysis and bio morphological species *Phlomis salicifoliya* Regel. genus *Phlomis* L. flora of the Nakhchivan Autonomous Republic. It was revealed that in the territory of the Autonomous Republic occur, uneven distribution of plants in the family *Lamiaceae* Lindl. On the belts and adaptation to new conditions of life. Distribution of species of the family on geobotanical areas is directly dependent on the complexity of the terrain, and differences in exposures steepness of the mountain slopes. Within each high-altitude belt plant species mainly represented by one or sometimes several formations. As a result of geographical studies in the flora of the Nakhchivan Autonomous Republic found 129 species of *Lamiaceae* Lindl., members of the 30 genera of the family. The article presents the results of a study of antioxidant activity of fruits Phlomis salicifoliya Regel purple loosestrife in the emulsion system of linoleum acid. The dependence of the antioxidant activity of the extract concentration. High activity of ethanol extract (83.1%) evaluated at a concentration of 40 ug / ml as compared to the activity of α-tokoferola 79.8% and 91.6% butyl hydroxyanisole.

Keywords: ovate-lanceolate, heart-shaped, the antioxidant activity of ethanol extract

1. Introduction
On the map physiographic zoning Azerbaijani territory of Nakhchivan Autonomous Re-public consists of 3 (lowland area, medium and high altitude zone) zones (Alakbarov, 2013) [1, 2]. The territory of the Autonomous Republic (5.5 thousand. km^2) is located in the south-western part of the Lesser Caucasus and is divided into seven administrative districts. The climate of the autonomous republic of the type typically continental, with hot summers and harsh winters. The total length of the border is 398 km. In the south and west of the river Araz state border runs from the IR of Iran (163 km) and Turkey (11 km). In the northeast, northwest and on Zangezur ridges Daralagez Autonomous Republic borders on the Republic of Armenia. The lowest point of the autonomous republic is on the left bank of the Araz (600 m above sea level) at the foot of a steep slope Soyugdaga ridge. The main objective of our research was to study bio morphological and ecological features 4 view of the family *Lamiaceae* Lindl., determining the geographical patterns of distribution of these species in the territory of the auto-nomous republic, the term and methods of collecting, drying of raw materials, as well as identifying useful properties (Alakbarov, 2013; Ibadullaeva, 2014) [1, 2, 14].

Preparation of plant samples, the preparation, purification and drying of the extracts was carried out as described previously. Anti-oxidant activity (ability or capacity) is widely used as a parameter (along with others) for characteristics of various plant materials (individual substances, plant extracts, medica-ments, etc.). Antioxidant activity, charac-teristic of substances that is able to protect the system against biological processes or reactions that cause oxidation taking place with the participation of reactive oxygen species.

2. Materials and methods
The research work carried out in the 2014-2016 summer seasons' route-forwarding me-thods. Collected over 320 herbarium speci-men's *Lamiaceae* Lindl. Materials processed paper method. We used the binocular mag-nifier MBS-2 microscope and MCI-2 and ICI-5. Clarification plant species supplies carried on A.A. Grossheim. "Flora of Caucasus", L.I. Prilipko "Vegetable relations in Nakh-chivan Autonomous Republic".

Antioxidant activity of plant extracts and antioxidants standard was determined by the thiocyanate method. Reagents were prepared immediately prior to testing. Solutions or extracts of antioxidants were added to a reaction vessel containing a mixture of linoleum acid emulsion (2.5 ml, 0.02 mol) and potassium phosphate buffer (2.0 ml, 0.2 M, pH 7.0). The reaction mixture was stirred and incubated in the dark at 40°C to accelerate the oxidation. During the incubation, at regular intervals of time (5 minutes) from the reaction mixture 0.1 ml was taken and diluted with 4.7 ml ethanol and then added 0.1 ml of a 30% solution of ammonium thiocyanate. Subsequently, to the mixture was added 0.1 ml (2 x 10^{-2} mol) of ferric chloride in 3.5% HCl. Superoxide linoleum acid (the level of generated peroxide) was determined by measuring the accumulation of hydro peroxides absorbance increase at 700 nm in a spectrophotometer (Hitachi U-2900 UV-VIS, Japan). As a control, the reaction mixture was tested without substances. Per oxidation inhibition (PI%) linoleum acid calculated by the following equation:

$$PI\% = [1- (Ao / Ak)] \times 100$$

Where Ao - the value of the absorption mixture in the presence of samples tested, Ak - the value of the mixture

without the absorption patterns. The value of the maximum absorption of the control (no antioxidant reaction mixture), reached after 45 minutes of reaction, has been accepted for 100% oxidation. Ao/Ak ratios were calculated after 45 minutes. I start the reaction. α-tocopherol and butyl hydroxyanisole (BHA) were used as standard for comparison antioxidants. All data on the antioxidant activity of an average of two tests.

3. The discussion of the results

The species composition of the vegetation area changes regularly according to high-altitude zones. Since, according to vertical zonation climate, soil conditions and habitat types are replaced sequentially. The distri-bution of species on geo botanical areas is directly dependent on the complexity of the terrain, and differences in exposures steepness of the mountain slopes. (Talibov, 2012) [10].

Phlomis salicifoliya Regel. perennial plant with long roots braid provided with tuberous bulges. Stem glabrous, often, especially in the inflorescence, violet-purple, simple or bran-ched, with a height of 60-100 (150) cm. Upper stem leaves are ovate-lance late or narrowly oblong-lance late, at base shallowly cord ate. All the leaves are green on top, almost naked, from below gray, more or less hairy. Calyx usually naked with 5 teeth with sibilate cusp. With a length of 8-10 mm and 3 times are shorter than the tube. Whisk in 2 times longer than the calyx, pink or purple, outside densely softly hairy. Upper lip hooded, on top of a rack, on the edge of the inside thick and silky hairs, the lower lip with an average egg and lightly notched blade and egg. Nuts oblong, at apex shortly hairy. Blossoms V-VI (VII), fruiting VI-VII (VIII) (Bureyko, 1912; Grossheim, 1938; Prilipko, 1939; Gasimov, 1990, Talibov, 2008) [3, 5, 6, 11].

Distributed in the territory with. Kechili Shahbuz, mils Julfa, Pezmeri, Dyrnys Ordu-bad, Kyvrag Kangarli, Nagadzhir, Disa Babek regions.

In the lower and middle mountain zones. On dry clay and stony slopes, among shrubs xerophilous, pliers spina-christi in the bush, in the gardens, sometimes at the edge of crops.

General distribution: the European part (in the middle and southern parts), the Caucasus (all), Western and Eastern Siberia, the Far East, Central Asia, Asia Minor, Iran, Azer-baijan. The species was described from Siberia.

Antioxidant Activity (AA %) ethanol extract of the fruit was assessed *Phlomis salicifoliya* Regel. thiocyanate method in the emulsion system of linoleum acid. This method is used to measure the level of lipid peroxides produced during the initial stages of the oxidation of lipids. During the oxidation of linoleum acid, forming peroxides oxidized Fe^{+2} to Fe^{+3}. Recent ions form a complex with SCN^{-1} and the complex is characterized by a maximum absorbance of 700 nm. Therefore, a high absorbance indicates a higher degree of oxidation of linoleum acid.

The results of the per oxidation of linoleum acid obtained thiocyanate metodom 40 °C in the presence of ethanol extract.

Table 1

Time	The value of absorption at 700 nm						
	Control	Extract Concentration ug / ml					
		20	40	80	120	160	200
0	0.011	0.013	0.011	0.01	0.011	0.013	0.01
5	0.32	0.203	0.16	0.144	0.156	0.126	0.14
10	0.66	0.312	0.22	0.189	0.167	0.144	0.149
15	0.905	0.45	0.29	0.235	0.181	0.169	0.166
20	1.45	0.58	0.278	0.189	0.147	0.12	0.117
25	2.23	0.89	0.5	0.324	0.252	0.193	0.216
30	2.68	1.08	0.67	0.41	0.276	0.226	0.217
35	2.93	1.45	0.78	0.46	0.29	0.24	0.241
40	3.24	1.91	0.99	0.57	0.329	0.264	0.271
45	3.4	2.43	1.17	0.576	0.367	0.283	0.284
Activity %		28.6	65.6	83.1	89.3	9.7	91,7

As can be seen from the data in the control experiment (without plant extract), the initial stage of per oxidation of linoleum acid, the process is accompanied by a rapid increase in the content of peroxides, as evidenced by an increase in the absorption of the reaction mixture spectrophotometric particular method. The antioxidant activity of ethanol extract was compared with commercial antioxidants such as α-tokoferol and butyl hydroxyanisole (BHA). A significant difference (P<0.05) was found between the values of absorption and control of the plant extract, which shows the level of formation of peroxides. Effect of concentration on the ethanol extract of linoleum acid per oxidation is shown in Table. As can be seen from the table, with increasing concentration of the extract increases the inhibitory effect of lipid per oxidation process.

It was revealed that the ethanol extract in the presence of linoleum acid emulsion system, even at a concentration of 40 ug / ml reduces the formation of peroxides by 65.6%. The ethanol extract at a concentration of 80 ug / ml showed a strong antioxidant effect and a significant difference (P <0.05) was found between concentrations of 20-40 mg / ml. However, the antioxidant activity between ethanol extracts of 80 ug / ml and the concentrations of 120-200 ug / ml was found little difference (P> 0.05). At a concentration of 80 mg / ml ethanol extract showed several high antioxidant activity than α-tokoferol (79.8%) and slightly less than BHA (91.6%).

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found little difference ($P > 0.05$). At a concentration of 80 mg / ml ethanol extract showed several high antioxidant activity than α-tokoferol (79.8%) and slightly less than BHA (91.6%). These results demonstrate that the ethanol extract of the free radicals can react, in particular, proxy, which are the major disseminators of lipid per oxidation reaction and thereby limit or delay chain reaction. The main purpose of the use of antioxidants extension of induction period, the auto oxidation which leads to the preservation stability of lipids in various systems, including food products.

4. Conclusion

The results show that the ethanol extract significantly extends the induction period of per oxidation of linoleum acid, which is manifested in the reduction or delay the accumulation of oxidation products (peroxi-des). The antioxidant activity of the compo-unds is often characterized by the ability to delay the onset of auto oxidation removal of reactive oxygen species or inhibit the growth of chains with lipid oxidation. These results suggest that the extract may react by free radicals, especially proxy, which are the main distributors of auto oxidation of fats and fatty foods willows terminated by per oxidation chain reaction. The results clearly show that the ethanol extract of the fruits *Phlomis salicifoliya* Regel. characterized significant antioxidant activity in a model system *in vitro*. Therefore *Phlomis salicifoliya* Regel. fruits can be used as a readily available source of natural antioxidants for the food and pharmaceutical industries (Kovalev, 1978) [9].

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