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Quantum Method of Pharmacological studies of Biologically active substances (bav) of Medicinal plants with Antiviral and Endothelioprotective Properties

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Abstract

In this work, a comprehensive study of all medicinal plants with the yellow color of flowers is carried out. This morphologically valuable feature is color, associated with electromagnetic radiation (absorption), as the main factor in the formation of secondary metabolites (BAV). As a result of comparative analysis and quantum research methodology, we identified plant species that have a characteristic therapeutic characteristic - antiviral and have endothelio protective properties.

Keywords: *medicinal plant, yellow color, quantum technique, medical characteristic*

Introduction

The specific characteristics of the metabolism of various plant species have determined their selective ability to accumulate chemicals that have high physiological activity at low concentrations - the so-called Biologically active substances (BAS). The physiological activity of substances can be considered both from the point of view of the possibility of their pharmacological study and medical use [1] , and from the point of view of maintaining the normal functioning of the human body [2] or giving a group of organisms special properties [3]. For example, *flavicin* (natural flavonoids) possessing endothelial protective properties [4].

Secondary metabolites are the most important physiologically active compounds in the plant world. Their number, investigated by pharmacological science, is increasing every year. At the moment, only about 15% of all plant species have been studied for the presence of these substances.

Compounds of secondary metabolism, unlike primary metabolites, have functional significance not only at Numerous studies on the study of angioprotective and antioxidant properties of natural flavonoids, including diabetic micro- and microangiopathy, have revealed that flavonoids are among the promising groups with endothelial protective effects. [7].

the level of the cell, but at the level of the tissue and cell of the whole plant. Most often, these substances perform "ecological" functions, i.e., protect the plant from various pests and pathogens, participate in the reproduction of plants, giving color and smell to flowers. and fruits, provide interaction of plants with each other and with other organisms in the ecosystem.

In this particular case, we consider flavonoids as compounds of secondary metabolism in the plant. The natural functions of flavonoids are poorly understood. It was assumed that due to the ability to absorb ultraviolet radiation (330-350 nm) and part of the visible light (520-560 nm), they protect plant tissues from excess radiation. In mammals, flavonoids are able to change the activity of many metabolic enzymes [5].

It has been established that in the virus SARS-CoV-2 is sensitive to ultraviolet irradiation with a dose of at least 25 mJ / cm2 [6] In this range, absorption of ultraviolet light by a medicinal plant with yellow light is observed.

The aim of our study was to study the effect of flower color as specific characteristics of the metabolism of different plant species, which determined their ability to accumulate the chemicalM, the main flavonoid. Which flavonoids, in turn, have specific

pharmacological properties.

Materials And Methods

The object of the study was any medicinal plants with a yellow color of flowers, as well as yellow - yellow, with the addition of a different color. Yellow - colors of electromagnetic radiation with wavelengths from 550 to 590 *nm* [8]

We take electromagnetic radiation (absorption) as the main factor in the formation of secondary metabolites, to which we apply the Quantum Research Methodology.

According to the special theory of relativity (SRT), there is a connection between mass and energy, expressed by Einstein's famous formula{\displaystyle E=mc^{2},} (1) In a vacuum, the energy and momentum of a photon depend only on its frequency ({\displaystyle \nu } equivalent, on the wavelength {\displaystyle \lambda =c/\nu }): (2) Where:

- Photon (light) energy; - Planck's constant (6.624. 10-34 *j.s*); - Wave frequencies

I consider the mass () of a photon (officially, a term that goes out of use in quantum physics) to be equa(3) See: Table 1 [9]

The pressure of electromagnetic radiation, the pressure of light () sor electromagnetic radiation, Experimentally, light pressure was first studied by P. N. Lebedev in 1899. In electrodynamics, the pressure of electromagnetic radiation is described

Results And Discussion

According to the formula (1), (2) and (3), we will compile Table 1. From Table 1 - row "Color" "Yellow" we will make Table 2.

Table 1: Correspondences of lengths, frequencies, mass and energy of electromagnetic radiation and colors

Color	***Wavelength range (λ), [nm]***	***Wave frequency range(v), [Hz]1. 1014***	***Range Mass of photons (m) [kg]1. 10-36***	***Photon energy range (E) [eV]***
Infrared	*770 - 40 000*	*< 3>*	*2,206 - 0,3577*	*< 1>*
Red	*625- 740*	*4,05-4,8*	*3,52 - 2,99*	*1,68 - 1,98*
Orange	*590 -625*	*4,8-5,1*	*3,74-3,52*	*1,98 - 2,10*
Yellow	*565 – 590*	*5,1-5,3*	*3,89-3,74*	*2,10 - 2,19*
Green	*500 – 565*	*5,3-6,0*	*4,14-3,89*	*2,19 - 2,48*
Blue	*485 – 500*	*6,0-6,2*	*4,56-4,14*	*2,48 - 2,56*
Blue	*440 – 485*	*6,2-6,8*	*5,01-4,56*	*2,56 - 2,82*
Violet	*380 – 440*	*6,8-7,9*	*5,81-5,01*	*2,82 - 3,26*
Ultraviolet	*0,1- 400*	*2,998.104-7,50*	*22 071,1 –5,511*	*12 398–3,1*

Table 2 - A complete list of plants with yellow flower flowers

Latin	***Name***	***Latin***	***Name***
1. Achillea clypeolata S.S.	*Yarrow yellow shield-shaped)*	*60. Jasminum fruticans L.*	*Jasmine shrub*
2. Adonis vernalis L.	*Adonis spring*	*61. Kickxia spuria (L.) Dum.*	*Kixia real*
3. Agrimonia eupatoria L.	*Common turnip*	*62. Lactuca serriola L.*	*Compass lettuce*
4. Ajuga chamaepitys (L.) Schreb.	*Tenacious elut*	*63. Lathyrus pratensis L.*	*Meadow chin*
5. Anemone ranunculoides L.	*Buttercup windmill*	*64. Lepidium perfoliatum L.*	*Pierced bedbug*
6. Anethum graveolens L.	*Garden dill*	*65. Linaria vulgaris Mill.*	*Common flaxseed*
7. Anthemis tinctoria L.	*Pupavka dye*	*66. Lotus corniculatus L.*	*Lyadvenets horned*
8. Anthyllis would violate L.	*Common ulcer*	*67. Melilotus officinalis (L.)*	*Donnik officinalis*

Latin	Name	Latin	Name
		Pall.	
9. Aristolochia clematitis L.	Kirkazon	68. Oenothera biennis L.	Biennial donkey
10. Artemisia absinthium L.	Wormwood	69. Parsnip sativa L.	Parsnip
11. Asparagus officinalis L.*	Pharmacy asparagus	70. Potentilla anserina L.	Goose lapchatka
12. Astragalus glycyphyllos L.	Astragalus sweet-leaved	71. Potentilla erecta L.	Lapchatka erecta
13. Barbarea vulgaris R. Br.	Common meadowsweet	72. Potentilla reptans L.	Creeping lapchata
14. Berberis vulgaris L.	Common barberry	73. Prangos ferulacea (L.) Lindl.	Prangos
15. Bidens tripartite L.	Three-part series	74. Primula etalior Hill.	Primrose tall
16. Brassica (Sinapis) nigra Koch	Black mustard	75. Primula vulgaris Huds. (P. acaulis Jacq.)	Common primrose
17. Brassica juncea (L.) Czern. et Coss.	Sarepta mustard	76. Primula veris L. (P. officinalis Jacq.)	Spring primrose
18. Bryonia alba L.	Step white	77. Pulicaria vulgaris Gaertn.	Bloshnica
19. Bupleurum rotundifolium L.	Round-leaved volodushka	78. Radiola rosea L.	Radiola pink
20. Caltha palustris L.	Swamp koluzhnitsa	79. Ranunculus acris L.	Buttercup caustic
21. Carthamus lanatus L.	Woolly Safflower	80. Ranunculus repens L.	Creeping buttercup
22. Cerinthe minor L.	Small waxer	81. Ranunculus would be L. (It would be verna Huds.)	Chistyak
23. Chelidonium majus L.	Celandine large, warthog	82. Reseda luteola L.	Reseda dye, cerva
24. Chrisosplenium alternifollum L.	Common spleen	83. Reseda lutea L.	Reseda yellow
25. Cnicus benedictus L.	Cnikus blessed	84. Rhinanthus minor L.	Small rattle
26. Colutea arborescens L.	Tree bladderwort	85. Rorippa pyrenaica (L.) Rchb.	Zherushnik Pyrenees
27. Cornu's mas L.	Common dogwood	86. Rubia tinctorum L.	Madder dye
28. Cotinus purpose coggygria.	Leather mackerel	87. Graveolens route L.	Fragrant rue
29. Descurainia sofia (L.) Webb.	Discurainiia of Sofia	88. Salix alba L.	White willow, vetla, whitewash
30. Digitalis grandiflora Mill.	Large-flowered bridge	89. Salix fragilis L.	Willow brittle
31. Digitalis lanata Ehrh.	Woolly obere	90. Sambucus racemosa L.	Elderberry tassel
32. Doronicum columnae Ten.	Doronicum	91. Scabiosa columbaria L.	Scabiosa pigeon
33. Erysimum diffusium Ehrh.	Jaundice spreading	92. Sedum acre L.	Ochitok caustic
34. Erysimum crepidifolium Rchb.	Jaundice toothed	93. Sedum maximum Suter	Big spruce, hare cabbage

Latin	Name	Latin	Name
35. Erysimum repandum L.	*Jaundice notched-toothed*	*94. Senecio nemorensis L.*	*Oak crossbill*
36. Euphorbia cyparissias L.	*Milkweed cypress*	*95. Senecio jacobaea L.*	*Jacob's Cross*
37. Filago arvensis L.	*Field toad*	*96. Senecio vulgaris L.*	*Common crossbill*
38. Filago vulgaris Lam.	*Small toad*	*97. Sempervivum ruthenicum Schn.*	*Molodilo Russkoe*
39. Foeniculum vulgare Mill.	*Fennel vulgaris*	*98. Sideritis montana L.*	*Zheleznitsa gornaya*
40. Galium verum L.	*Real underbrush*	*99. Sideritis scardica Grsb.*	*Railway*
41. Galium cruciatum Purpose.	*Cruciform underbrush*	*100. Silena otites (L.) Wibel.*	*Smolevka long-eared*
42. Genista tinctoria L.	*Woodwax*	*101. Sisymbrium officinale (L.) Purpose.*	*Gulyavnik officinalis*
43. Genista segittalis L.	*Drock lancet*	*102. Solidago virgaurea L.*	*Common goldenrod*
44. Gentiana lutea L.	*Gentian yellow*	*103. Stachys straight L.*	*Chisel Straight*
45. The dotted gentian L.	*Pinpoint gentian*	*104. Stachys annua L.*	*Annual cleaner*
46. Geum montanum L.	*Mountain gravilate*	*105. Tanacetum vulgare L.*	*Feverfew maiden, golden-flower maiden*
47. Geum urbanum L.	*Urban Gravilate*	*106. Taraxacum officinale Webber*	*Pharmacy dandelion*
48. Glaucium flavum Cr.	*Glaucium yellow*	*107. Telekia speciosa Bmg.*	*Telekia the Beautiful*
49. Gnaphalium uliginosum L.	*Sushenitsa topyana*	*108. Tilia grandifolia Ehrh.*	*Linden heart-leaf*
50. Helychrisum arenarium Moench	*Sandy cumin*	*109. Tilia parvifolia Ehrh.*	*Small-leaved linden*
51. Heracleum sibiricum L.	*Hogweed*	*110. Tilia tomentosa Moench*	*Lime pushy, lime voylocha*
52. Hieracium pilosella L.	*Hairy hawk*	*111. Thalictrum minus L.*	*Basilisk minor*
53. Hyoscyamus niger L.	*Black belena*	*112. Tragopogon pratensis L.*	*Meadow goat*
54. Hypericum perforatum L.	*St. John's wort perforated*	*113. Tribulus terrestris L.*	*Tribulus creeping*
55. Hypochaeris maculata L.	*Speckled grouse*	*114.Tussilago farfara L.*	*Coltsfoot*
56. Inula germanica L.	*Elecampane Germanic*	*115. Verbascum phlomoides L.*	*Woolly mullein*
57. Inula britannica L.	*Elecampane British*	*116. Verbascum thapsiforme Schrad.*	*Tupsoid mullein, tall mullein*
58. Inula helenium L.	*Elecampane high*	*117. Veratrum album L.**	*Chemerica white*
*59. Iris pseudacorus L**	*Yellow killer whale*	*118. Viscum album L.*	*White mistletoe*

Findings

1. Biologically active substances (BAV) of all medicinal plants Table 2, have high pharmacological antiviral, bactericidal, anti-inflammatory, antiseptic and insecticidal activity.

2. Looking at the equations (4), (5), (6), and (7) it turned out that the plants emitted yellow color of the flowers (in the energy range: 2.10 - 2.19 eV) absorb

infrared light (in the energy range: < 1>), which light possesses some properties like: increasing the diameter of the vessels and improving blood circulation (improving endothelial function); activation of cellular immunity (antiviral activity) ; removal of tissue swelling and inflammation (improvement of endothelial function); relief of pain syndromes; improvement of metabolism; removal of emotional stress; restoration of water-salt balance; normalization of hormonal levels.

3. Quantum mechanisms and biological structures are related – their properties are uniform and/or supplemented. This connection can be established by creating a mathematical-physical-biological model, and in the future by studying their pharmacodynamic and pharmacokinetic properties, and behavior, through this model

Summary

In this work a comprehensive study of all medicinal plantswith yell ow flowersis carried out. This morphologically valuable feature is color, associated with electromagnetic radiation (absorption), as the main factor in the formation of secondary metabolites. As a result of comparative analysis and quantum research methods, we have identified plant species that have the same therapeutic charac teristics

References

1. Golovkin B. N. et al. (2001), Biologically active substances of plant origin, Otv. red. V. F. Semikhov. - M.: Nauka. - T. I. - p. 350.
2. Gromova N. Yu., Kosivtsov Y. Yu., Sulman E. M, (2006), Tekhnologiya synthesiya i biosintezta biologically active substances: Uchebnoe posobie. - Tver': TSTU. p.84 - p.
3. Poliksenova V. D. (2007), Biologically active substances of biogenic and abiogenic nature as inducers of non-specific resistance of tomatoes to stress // Vestnik BGU. Ser. 2: zhurnal. - No 3. - p. 83-86
4. I.N. Tyurenkov, A.V. Voronkov, A.A. Slietsans, E.V. Volotova, (2012), Endothelioprotectors - a new class of pharmacological preparations Scientific messages, vestnik RAMS / No 7, p.50-57
5. Middleton, E., Kandaswami, C., & Theoharides, T. C. (2000). The effects of plant flavonoids on mammalian cells: implications for inflammation, heart disease, and cancer. *Pharmacological reviews*, *52*(4), 673-751.
6. TEMPORARY GUIDELINES PREVENTION, DIAGNOSIS AND TREATMENT OF NOVEL CORONAVIRUS INFECTION (COVID-19) Approved by: Deputy Minister of Health of the Russian Federation E.G. Kamkin, Ministry of Health of the Russian Federation. Version 11 (07.05.2021)
7. Lesovaya Zh.S., Kochkarov V.I., Goncharov N.F., Pokrovsky M.V., Pokrovskaya T.G., Korokin M.V., Ostashko T.V. (Scientific adviser: Doctor of Medical Sciences, Professor Pokrovsky M.V.), (2012), The possibility of using flavonoids in pharmacological correction of endothelial dysfunction // Belgorod State National Research University, Department of Pharmacology and Pharmaceutical Disciplines of IPMO. - p.140-142
8. Artyushin L. F. Color // Physical Encyclopedia : [in 5 t.] / Gl. red. A. M. Prokhorov. - M.: Bolshaya rossiiskaya entsiklopediya, (1999), - Vol. 5: Stroboscopic Instruments - Brightness. p. 419. p 692
9. Kanisov Vasil, Quantum Physics, (2019), Photosynthesis and Phytotherapy. Kyustendil. I. View at Publisher | View at Google Scholar
10. Pressure of light // Physical Encyclopedia. - M., «Sovetskaya entsiklopediya», 1988. - T. 1. - p. 553-554
11. Lebedev P.N. Experimental study of light pressure. In: G.M. Golin, S.R. Filonovich. Classics of Physical Science. M., «V. shk. », 1989 or Lebedev P.N. Sobranie sochinenii. M., (1963).