

PHYTOTHERAPY OF CARDIOVASCULAR DISEASES INFORMATION ASPECT

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RESUME

The future development of phytotherapy in the world medicine requires a new level of investigations aimed at the treatment of malignant formation, AIDS and cardiovascular diseases. With a view to including phytotherapy in the international system of public health, it is very significant to solve the problems regarding a creation of a unified standard for the application of plant-derived resources and methods of definition of their efficiency for the treatment of various diseases. The goal of this present work is to create a single automatized approach towards the treatment by means of herbs, specifically for the treatment of cardiovascular diseases.

Since 1972 up to present a group of researchers headed by an academician Treskunov, has succeeded in establishing and collecting a huge computer database with respect to the treatment of subjects by means of phytotherapy. Databases and a special software complex for a therapist were created. This allowed not only to conduct static and kinetic researches of a medical process but also to use the given researches in practice.

The data of phytotherapy efficiency of cardiovascular diseases were taken into account. It was proved that they average 70% for a static efficiency and 31% for a kinetic efficiency. The investigations of temporal characteristics enabled us to speak about the speed of phytotherapy when treating cardiovascular diseases.

A typical symptomatology of every cardiovascular disease was defined based on the complete processing of the entire database. An efficiency of the action of a particular herb upon the particular parameter was defined by means of the kinetic efficiency for every symptom, syndrome and disease in the computer cartography. The theoretical researches conducted by us allowed us to increase the efficiency of phytotherapy of particular patients. A set of herbs for the given particular patients and their concentration in the collection were formulated by us based on the results of the array processing of the efficiency of all the sets of parameters.

INTRODUCTION

Botanical medicine, or phytotherapy, is the most widespread form of medical treatment in the world (1). Estimated sales of herbal medicine in the U.S. reached \$1.2 billion in 1996 (2). Treatment by phytotherapy is less costly as opposed to conventional medicine. Cost-effectiveness studies are rare even in East Asia where the economic impact of herbs in the medical marketplace is greatest. Herbal medications are potentially effective for withdrawing patients from benzodiazepine drugs, at a significant savings in cost as well as in quality of life (3) Medical plants have also been tested for a variety of other complaints including nausea (4) hyperglycemia (5) circulation problems (6) hypercholesterolemia (7) and hormone regulation for disorders of climacteric (8). Thus there is tremendous potential to reduce health care costs by

using herbal extracts and herbs. But there is a need for methods of testing appropriate to botanical medication. Ignoring the details of personal history and physical examination will neither validate the traditional uses of herbs nor develop their therapeutic potential. Regulating agencies in USA, Germany, France, the United Kingdom, Canada, and Japan enforce standards of herbal product quality and safety assessment of herbal product manufacturers (9, 10) There remain several uncertainties with regard to standards. Potency of substances is also affected by growing conditions, storage, handling, as well as subsequent methods of preparation. The complex properties of herbs must be studied and applied within the context of more complex "functional" whole-system models of physiology. As in French phytotherapy of the terrain, Ayurvedic and Chinese medical systems have long traditions of diagnosis that adjust treatment according to a complex interpretation of symptoms and signs. The goal of whole-system treatment is to seek the correct combination of herbs to balance out unwanted effects or one-sided effects from individual herbs.

Since 1972, we have collected the phytotherapy database (11,12,13,14,15,16) of about 3000 patients. For each patient without selection, a Computer Card was set up. It includes all the necessary data about a patient and his/her treatment.

As a result, databases and a phytotherapist program complex were created. For the first time, it gave us an opportunity to perform not only the static and kinetic investigations of the treatment process, but also to use the investigation data in the practical treatment procedure.

The aim of this article is to show the potentials of the phytotherapy computer base when treating cardiovascular diseases.

PROBLEM DEFINITION

This scientific work consisted of six tasks.

First, we would like to define the phytotherapy effectiveness of main cardiovascular diseases (CVD) in view of their static and kinetic variants.

Second, the analysis of the temporary indices enables to compare various cases on how fast a patient recovers due to the phytotherapy treatment in various cardiovascular diseases.

Third, the full processing of the whole data basis allows us to define the typical symptoms of each CVD up to the average characteristics of each symptom. As a result, we can estimate the kinetic characteristics of a disease, which depend not only on the quantity and quality of parameter (symptom, syndrome and disease), but on the time of their development (kinetics). Only computers can perform it. Hereafter, the word "parameter" will mean the symptom, syndrome, and diseases as the investigation objects.

Fourth, when using the kinetic efficiency for each particular parameter in a Computer Card (CC) and knowing the concentration of herbs in species, one can estimate the action of the efficiency in each herb for the given parameter.

Fifth, the theoretical investigations performed by our group, allows us to use them in practice, mainly to increase phytotherapy efficiency in particular patients. We made a recipe taking into account that the species are made from herbs, which are most effective for the whole parameter complex relating to the particular patient. Based on the results of the matrix efficiency for all groups of parameters, we received not only the herb species for a particular patient, but also their concentration of herbs in the species.

Sixth, we would like to show how great the potentials of our "Phytotherapy Computer Basis" are. We performed an exotic investigation. We defined the presence of the predisposition

to the CVD depending on the date of birth and sign of Zodiac. This is known as the "Astrology prognosis".

ESTIMATION OF THE PHYTOTHERAPY EFFICIENCY IN CARDIOVASCULAR DISEASES

When registering a patient, the following factors are included: gender, age (date of birth), weight, height, blood type and rhesus factor, allergy presence etc.

When making basic calculations the following factors are taken into account:

1. The disease symptom, syndrome, as they were manifested prior to the treatment according to the 1-3 W_s scale;
2. The disease symptom, syndrome, as they were manifested upon the completion of the treatment according to the 0-3 W_p scale;
3. The time interval within which the disease symptom, syndrome, are present according to the 1-3 T_s scale;
4. The treatment time interval according to the 1 -3 T_l scale.

The efficiency of the calculation is performed based on two algorithms: statistical and kinetic.

The statistical variant assumes the summary accounting of all CC in which the given disease is present and the summation of all the indices:

- a) Practically recovered (PR) - $W_p = 0$
- b) Significant improvement (PI) - $W_p=1$ (except the case $W_s=1, W_p=1$)
- c) Improvement (IM) $W_s=3, W_p=2$
- d) No changes (NCh) $W_s=W_p$
- e) Worsening (W) $W_s < W_p$

The kinetic variant assumed the time interval accounting. The phytotherapy efficiency of the symptom, syndrome, is calculated based on the formula below:

$$(1) \quad E_k = \frac{(W_s - W_p)}{W_s} * \frac{T_s}{T_l}$$

We must first receive the data, which should be subject to reliability qualification. We then use the mathematical, statistical, methods (15). The phytotherapy efficiency of the CVD is a series of values that can coincide (in this case, we state with confidence about the efficiency of the phytotherapy on the whole) or not coincide (in this case, the part of diseases, symptoms, syndromes) will deviate from the average values.

To check the coincidence hypotheses we use the following formulas:

1. The efficiency average index

$$(2) \quad E_{av.} = \frac{\sum I E_i}{N}$$

2. Standard efficiency deviation

$$(3) \quad S_x = \sqrt{\frac{\sum (E_{av.} - E_i)^2}{(n-1)}}$$

3. Standard error of the average arithmetical

$$(4) \quad O_x = S_x / \sqrt{n}$$

3. Variation coefficient

$$(5) \quad CV = 100 * S_x / X_{av.}$$

Commonly, the condition character variation is considered as the average if the quantity of the variation coefficient is between the limits 10 % to 25 %.

Finally, it is essential to determine the "doubtful" data, i.e. the data that goes beyond the data reliability.

4. According to the formula, the limits within which the reliable results lie

$$(6) \quad E_d = X_{av.} + t_a * O_x$$

In the formula, t_a is a Student's coefficient for the confidence interval 95 % obtained according to Table 1 (Formula 6).

Since the article covers a detailed description of the researches in comparison with the phytotherapy of various classes of disease, it should be pointed out that phytotherapy of respiratory apparatus diseases, gastrointestinal tract is the most effective one. The diseases are traditional for our civilization and their phytotherapy is developed and successfully applied long before the emergence of pharmaceutical medicine. Pharmaceutical medicine can concede the treatment of the above diseases to phytotherapy. Autoimmune and oncological diseases are hardly treated through phytotherapy. However, pharmaceutical medicine failed to achieve considerable success in this field. Nevertheless, as a result of long and persistent treatment, positive results can be evident when conducting a joint treatment with pharmaceutical medicine based on the developed methods.

Below are the diseases which pertain to the class of the disease of "group risk" when a lot depends not only on the knowledge and methods, but also their experience, skill, and intuition of a phytotherapist: cardiovascular diseases, skin diseases and the diseases of the nervous system. The main reasons of the above diseases are not the cause of the nature but the changes of the natural factors of the environment. The immune system is by no means in condition to find an adequate response to the new challenge. Therefore, it is unable to wipe out and change the reasons of disease, since phytotherapy can only eliminate their consequences.

To perform the detailed investigation of the CVD phytotherapy potentials, 15 diseases presented in the CVD Table 1 were selected. We determine the student's coefficient for the coefficient interval of 95 % according to Table 1 (Formula 6). It is equal to $t_a = 2.14$. Consequently, the mathematically reliable values of efficiency are between the limits (see Formula 6)

$$E_d = X_{av.} + t_a * O_x$$

For the given case, $E_d = 69.9 \pm 2.14 * 2.21$

As a result, $E_d (\min) = 61$ $E_d (\max) = 78.8$

According to Table 1, the uncertain (going beyond the reliability limits) are the efficiency indices "Myocardosis" $E_f = 82$ % (over the upper permissible limit by 3, 2%) and "Myocardium infarct" $E_f = 53$ % (less than the low permissible limit by 8 %).

Table 1. Statistical CVD Phytotherapy Efficiency

Disease	In total	PR		PI		IM		NCh		W		Ef
		I	%	I	%	I	%	I	%	I	%	
Hypertension	486	189	39	20 4	42	32	7	55	11	6	1	70
Hypotonia	336	176	52	10 2	30	7	2	50	15	1	0	74
Cardiac Insufficiency	188	90	48	66	35	4	2	26	14	2	1	72
Stenocardia Tension	143	53	37	73	51	13	9	4	3	0	0	77
Obesity	66	12	18	21	32	26	39	6	9	1	2	59
Myocardosis	44	20	45	22	50	1	2	1	2	0	0	82
Myocardium Infarct	15	2	13	7	47	4	27	1	7	1	7	53
Encephalopathy	63	19	30	41	65	1	2	2	3	0	0	77
Heart Disease	23	4	17	15	65	0	0	4	17	0	0	63
WD by Hypertension Type	19	7	37	8	42	1	5	3	16	0	0	69
WD by Hypotonia Type	147	77	52	56	38	3	2	9	6	2	1	79
Streptococcal Infection	21	16	76	1	5	0	0	4	19	0	0	80
Discirculatory Encephalopathy	206	34	17	12 8	62	23	11	19	9	2	1	65
Cardiosclerosis	67	9	13	40	60	7	10	11	16	0	0	60
Ciliary Arrhythmia	59	20	34	25	42	7	12	6	10	1	2	68

Where PR - practically recovered, PI - significant improvement, IM - improvement, NCh - no changes, W - worsening

RATE ESTIMATION OF PHYTOTHERAPY IN CARDIOVASCULAR DISEASES

When using the **CVD** phytotherapy, it is of great interest to observe the process of the recovery rate in view of kinetics. Similar investigations were carried out and the data of the results are presented in Table 2.

To simplify the processing, it is essential to unite the "PR" (Practically Recovered) data and the "SI" (Significant Improvement) and calculate the phytotherapy rate for the case PR + PI. The obtained data is presented in Table 3.

For all this, the error of the variation coefficient is estimated according to the following formula:

$$(7) \quad \text{Ocv} = \text{CV} * \sqrt{V((0.5 + 0.0001 * \text{CV}^2) / n)}$$

In accordance with Table 3, the average value of the phytotherapy CVD rate is a part of the

confidence interval (Cv ranges from 10% to 25 %) only for the third case. For the first case, it is a part of the confidence interval but relatively (in view of error Cv).

Table 2. Cardiovascular Phytotherapy Rate

Disease	PR - TI (month)						PI - TI (month)					
	1(<1)		2(1-3)		3(>3)		1(<1)		2(1-3)		3(>3)	
	<i>I</i>	%	<i>I</i>	%	<i>I</i>	%	<i>I</i>	%	<i>I</i>	%	<i>I</i>	%
Hypertention	66	14	42	9	81	17	65	13	38	8	10.1	21
Hypotonia	57	15	54	16	65	19	31	9	20	6	51	15
Failing Heart	30	16	24	13	36	19	15	8	21	11	30	16
Stenocardia Tension	23	16	6	4	24	17	22	15	20	14	31	22
Obesity	8	12	1	2	3	5	8	12	0	0	13	20
Myocardosis	7	16	5	11	8	18	7	16	5	11	10	23
Myocardium Infarct	1	7	0	0	1	7	4	27	0	0	3	20
Encephalopathy	11	17	5	8	3	5	21	33	4	6	16	25
Heart Disease	3	13	0	0	1	7	4	27	0	0	3	10
VVD by Hypertension Type	2	11	2	11	3	16	5	26	2	11	1	5
VVD by Hypotonia Type	21	14	30	20	26	18	26	18	8	5	22	15
Cardiosclerosis	3	4	3	4	3	4	9	13	13	19	18	27
Ciliary Arrhythmia	7	12	3	5	10	17	8	14	4	7	13	22

This is accounted for by the fact that the state estimate in the course of the treatment lasting from one to three months has an intermediate nature. Table 3 also indicates that the recovery process after receiving phytotherapy is protracted. At least one third of patients are treated for over three months.

Table 3. Statistical Estimation of the Cardiovascular Phytotherapy Rate

Rate Indices	Practically Recovered + Significant Improvement		
	Up to 1 month <i>rn=i</i>)	From 1 to 3 months (TI = 2)	Over 3 months (TI=3)
Average Value Xav.	30.7	16.5	33.3
Standard Deviation Sx	8.32	7.95	6.78
Standard Error Ox	2.31	2.21	1.88
Variation Coefficient Cv	27	48.2	20.4
Error Cv	5.67	11.4	4.16

ESTIMATION OF TYPICAL SYMPTOMATOLOGY OF CARDIOVASCULAR DISEASES

The available statistics enables us to merely evaluate the "Typical computer medical

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history". Based on the statistics, all symptoms, syndromes and diseases relating to the investigated disease are remembered. If they occur more than 30% of the time, they are considered related to the particular disease. All their characteristics (pronounced nature before and after phytotherapy - W_s , W_p , existence time and treatment - T_s , T_l) are remembered and summed up. In accordance with the results, Formula 1 - E_k , calculates the efficiency of the symptom, syndrome, and treatment. The given value, unlike the values presented in Table 1, has a dynamic character, since not only the final result but also all the treatment parameters are taken into account. The utmost possible value of efficiency (see Formula 1) is equal:

$$E_k = \frac{3 - 0}{3} \cdot \frac{3 - 0}{3} \cdot \frac{3}{3} = 1$$

Therefore, one can estimate the kinetic efficiency not only based on absolute values but also on percentage and compare it with the value of static efficiency.

According to Table 1, the largest statistics are collected for five types of cardiovascular diseases:

1. Hypertension - 486
2. Hypotonia - 336
3. Cardiac Insufficiency - 188
4. Exertional Angina (pectoris) - 143
5. Discirculatory Encephalopathy - 206

Based on these diseases, we will carry out further investigations.

Below are the results of the computer processing obtained in accordance with the program "Standard Medical history - HYPERTENSION."

Table 4. Standard Medical History - HYPERTENTION

	Name	In Total (486)	T_s	W_s	W_l	T_l	E_d	$E_k\%$	R
1	Giddiness	204	2.90	2.25	0.68	2.15	0.94	31	4
2	Depression	197	2.80	2.23	0.73	2.05	0.73	24	6
3	Aches	198	2.85	2.14	0.65	1.98	1.00	33	1
4	Headache	238	2.87	2.24	0.74	2.02	0.95	32	3
5	Insomnia	169	2.90	2.14	0.66	2.02	0.99	33	2
6	Life quality	164	2.64	2.65	0.96	2.21	0.85	28	5

Notes:

1. For T_s , T_l , W_s and W_l their average values are taken.
2. R is a symptom (syndrome) range. The higher the efficiency is, the higher the range.

It is interesting to compare the values of the static and kinetic efficiency of phytotherapy symptom, syndrome of the diseases presented above. The list of symptoms, syndromes and also the efficiency compression are presented in Table 5.

At the bottom of the table the data of static processing of its columns are shown. Practically the coefficient of variation C_v is less than 25% for all the data. So the variation of the result is within the permissible limits. On making calculation for the permissible interval by

formula 6 for each column at the confidence probability equal to 95%, we obtain the limits within which our data is included. The data being beyond the given limits (at least slightly) are displayed in bold print.

As shown in the table, the static efficiency values exceed the kinetic efficiency values by two or more times. It is explains that the efficiency is calculated without using the data concerning the severity of the initial and final symptoms, the correlation between the existence time and the treatment time. When calculating the phytotherapy efficiency as a dynamic process, the more precise but lower values are obtained.

However, according to the official medical statistics, the efficiency is determined by the static technique.

The official medical statistics determines the efficiency value based on the statistic technique. We can sort out the values of statistical and kinesthetic efficiency from large to small, and see that the class of each parameter in the disease doesn't always coincide. This shows that the researches of kinesthetic efficiency in "Standard Medical history" will allow us to disclose the dynamics of phytotherapy of a disease. Our article does not cover the comprehensive research in this field.

Table 5. Standard Medical Histories and the Efficiency of Treatment by Means of Phytotherapy (%)

	Symptom	Hypotonia		Hypertension		Cardiac Insufficiency		Stenocardia		Encephalopathy	
		Es	Ek	Es	Ek	Es	Ek	Es	Ek	Es	Ek
1	Headache	72	32	70	31	58	26	-	-	74	34
2	Giddiness	76	31	76	32	71	28	-	-	77	37
3	Depression	74	24	68	27	69	26	-	-	-	-
4	Insomnia	74	33	-	-	79	30	-	-	-	-
5	Aches	76	33	76	32	76	30	-	-	-	-
6	Life quality	68	28	72	31	-	-	67	27	64	26
7	Diastolic pressure	-	-	-	-	79	28	73	30	71	30
8	Stomachaches	-	-	79	36	80	36	-	-	-	-
9	Constipation	-	-	74	33	76	32	-	-	-	-
10	Infiltration	-	-	-	-	77	28	-	-	-	-
11	Cholecystitis	-	-	-	-	71	26	-	-	-	-
12	Gastroduodenum	-	-	-	-	79	27	-	-	-	-
13	Oedemata	-	-	-	-	79	31	-	-	-	-
14	Tachycardia	-	-	-	-	69	30	-	-	-	-
15	Ischemia	-	-	-	-	-	-	58	29	-	-
16	Short breath	-	-	-	-	-	-	71	35	-	-
17	Atherosclerosis	-	-	-	-	-	-	68	27	-	-
	Xav.	73	30	74	32	74	29	70	30	72	32
	Sx	3.03	3.55	4.34	2.71	8.15	2.87	2.18	3.31	5.60	4.80
	Cv	4.16	1.18	6.03	8.75	11.0	9.90	3.14	11.1	7.80	15.0
	Ox	1.23	1.45	1.63	1.02	2.27	0.80	0.97	1.48	2.80	2.40

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ESTIMATION OF ACTION EFFICIENCY IN THE HERBS EFFECTING THE SYMPTOMS, SYNDROMES AND DISEASES

We used Formula 1 to calculate the action efficiency of herbs effecting the symptoms, syndromes, and diseases. To perform it, we added the logarithm with a base 10 of the reverse herb concentration in species into the formula. The logarithm is taken to coordinate the dimensional representation of values, because the concentration, as a rule, is from a tenth to thousandth proportion out of the full compound. Therefore, the influence coefficient of herbs (its concentration) upon the efficiency of phytotherapy can be presented as follows:

$$(8) \quad Kt = Lg \frac{IKi}{Ki}$$

The exceptions are the symptoms, syndromes, and diseases of adaptation decreasing (disadaptation), because of the herb - adaptogenes in the minimum amounts act as catalyst which are not included in the chemical reactions of the Krebs system - ATF synthesis and resynthesis. In these cases, use:

$$(8.1) \quad Kt = Lg \frac{Ki}{IKi}$$

Taking Formula 1 into account, the action efficiency of herbs influencing the given symptom, syndrome, and the disease in i - medical history, can be estimated as follows:

$$(9) \quad E_{ti} = \frac{(W_{si} - W_{pi})}{W_{si}} * \frac{T_{si}}{T_{li}} * \sim * K_{ti}$$

We defined the general action efficiency of the given herb influencing the given symptom, syndrome, of the disease as the arithmetic average throughout the base of all the medical histories.

$$(10) \quad E_{ts} = \frac{\sum_{S=1}^N IE_{ti}}{N}$$

Where S is a number of medical histories, where the combination of the given herb and the given disease are met (from 1 to N).

The acquired data is normalized on the 1-10 scale. Therefore, the tables in the action efficiency of the herbs upon the symptoms, syndromes, and diseases are derived. We use them in further practical and scientific work. Below are the tables of efficiency, which are obtained for five main diseases covered in the present article. As a rule, the first five herbs are taken at the beginning of the table and (if there is a negative effect) then the last five herbs are taken. It is essential to sum up the herbs presented in the table. The herb which is in the first place acquires a class equal to 5, the one that is in the second place acquires a class equal to 4 and so on. Having summed up all the herbs above, we draw another table of herbs, which are considered to be more effective during cardiovascular diseases. There is a problem concerning the forming of the effective medicine species to treat the particular patient. The intuition of a doctor who treats the patient is a main factor. The available medicinal species don't take into account the individual symptoms of a patient and intended for an average statistical patient.

Table 6. Action Efficiency of Herbs upon Cardiovascular Diseases

Hypertension		Hypotonia		Cardiac Insufficiency		Stenocardia Tension		Discirculatory Encephalop.	
Herb	E	Herb	E	Herb	E	Herb	E	Herb	E
Hypericum perforatum	8.1	Matricaria chamomilla	8.1	Hypericum perforatum	5.1	Hypericum perforatum	2.4	Plantago	2.3
Matricaria chamomilla	7.5	Plantago	4.5	Taraxacum officinale wigg	3.9	Poligonum aviculare	1.5	Poligonum aviculare	2.0
Betula alba	4.6	Hypericum perforatum	3.4	Matricaria chamomilla	3.7	Plantago	1.4	Hypericum perforatum	1.9
Vaccinium vitis - idaea	4.1	Tussilado farfara	3.0	Achillea milleforum	3.7	Melilotus	1.1	Melilotus	1.5
PMentha piperita	4.0	Achillea milleforum	3.0	Melilotus	2.6	Mentha piperita	0.8	Mentha piperita	1.1
Agrimonia Eupatoria	-1	Melilotus*	-1					Urtica urens	-2
Tryfolium pratense	-1	Origanum vulgare	-1					Alchimilla vulgaris	-2
Glechoma hederacea	-1	Crataecus	-1					Sanguisorba officinalis	-2
Hypericum perforatum	-2	Leonurus Cichorium intybus	-2						

* Not all herbs having a negative action on hypotonia are presented due to the lack of space

Table 7. Herbs More Effective During Cardiovascular Diseases

Herb	Class	Herb	Class
Taraxacum	17	Millefolium	3
Matricaria	12	Betula pendula	3
Plantago	12	Mentha piperita	3
Hypericum	8	Vaccinium vitis-idaea L.	2
Polygonum aequale Lindm.	8	Farfara	2
Melilotus	5		

ESTIMATION OF THE SPECIES COMPOUND IN VIEW OF HERB EFFICIENCY

As a result, the action efficiency is often rather lower than expected. Since 1990, the authors have carried out the tedious work regarding the computer accounting and statistical processing of the medical histories of patients. As a result, two tables of herb action efficiency upon the symptoms, syndromes, and disease of a patient (hereinafter referred to as "symptoms") have been obtained.

Having solved this problem, we could precede to a new stage of joint work, namely, to develop the calculation of algorithm for the computer species - ARKOS.

1. The initial data for calculation

- B. Tables of efficiency that include the symptom number, herb number and action efficiency (from - 10 up to +10) arranged in descending order, according to the action efficiency.
- C. Numbers and names of herbs
- D. Numbers and names of symptoms

The initial information for the preparation of the species include:

- a) Address information of a patient
- b) Symptoms list

The symptoms that a patient has are marked in the list. As a result, the initial table of a patient's symptomatology is obtained. It is put into the computer. After a doctor questions a patient, the doctor enters the following additional information referring to each symptom into the acquired table.

Patient <i>m</i>	Symptom, syndrome, disease S 1-700	Existence time Ts 1 - 3	Pronounced WR 1-3	Influence on general state WL 1 - 100	Complex index Kp
I	2	3	4	5	6

2. Information processing and making up the species for treatment.

- A. According to the efficiency obtained on the basis of symptoms, the medicinal herbs are selected to treat the patient. The principal Symptom → the most effective medicinal herb is used to treat the patient. The complex index of significance is assigned to each symptom (and to the medicinal herb which corresponds to it). It, is calculated by the following formula:

$$(11) K_{psi} = T_{si} * W_{Rsi} * \sqrt{WL}, \text{ where } \sqrt{WL} - \text{is a radical from } WL$$

I.e. we acquire 3 indices S-symptom, Nt - herb number, Kp - complex index of further processing for each symptom.

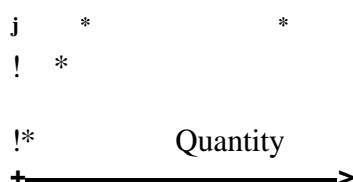
In fact, not a single herb from the efficiency table corresponds to the symptom but several depend on the index Kpsi. However, to simplify the statement, it is advisable to use one herb for each symptom. The further calculations would be elementary if the plant producing maximal effect upon one of the symptom did not have a positive (or negative) effect upon other symptoms, including the ones, which have been selected. This is the reason why in the calculations, the indices of the total effect of the given plant based on all the symptoms of the species Eti and the total effect of the plants based on the given symptom Eti are taken into account. During the calculations the indices in the given symptom having a relation of complex index in the given symptom towards the minimal complex index of the significance within the symptom.

$$(12) K_{p pr.} = K_{pi} / K_{p min.}$$

It is assumed that in low herb quantities, the action efficiency influencing the symptom increase is directly proportional to the herb quantity.

Figure 1. Relation of the Herb Action Efficiency to its Concentration in the Species

Efficiency



B. Calculation performed in accordance with the total herb effect based on the given Esi symptom.

Step 1. All indices referring to the herb efficiency based on the given Esi symptom are summed up.

Step 2. The highest is chosen and is taken as a normative part in the species.

Step 3. The normative amount of each herb species in a symptom is in reference to the chosen amount of herb species, which are calculated as a normalized herb species unit. The compound obtained in such a way that the action efficiency influencing each symptom would be similar.

Step 4. The normative amount of herbs in species for each symptom is calculated. The presented importance of the symptom:

(13) $S_{dsj} = E_{si} \cdot K_{p \text{ pr.}j}$, where j is a symptom for which the i , herb in grams, is pertained at a total species weight (1 kg).

(14) $D_i = S_{dsi} \cdot 1000 / \sum(S_{dsi})$

3. The example of the species composition calculation.

Below is the example of the species composition calculation for the patients suffering from cardiovascular diseases (five principal symptoms were taken for the sake of the simplicity of the example). As a result, the following data was obtained.

A. Initial data:

An expert doctor filled out the data presented in columns 1-5. The data presented in columns 6 and 7 were calculated based on Formulas 1 and 2 in reference to the symptoms having the lowest complex index K_p (0078).

C. Intermediate calculation data:

As a result, the following table of the total influence in the herbs upon the mentioned symptoms (conformity of the herb numbers with their names) was obtained. The presented table indicates that the herb 002 *Matricaria chamomilla* and 024 *Hypericum perforatum* are the most active and effective on all the symptoms mentioned in Table 8 (011 hypertension and 066

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Le. the normative coefficient Nks corresponds completely to Kp np. (Table 8) and the species efficiency action upon the symptoms corresponds completely to the presented importance of the symptoms

Table 10. Step 2

		Symptoms					Sdt	Nkr
		002	011	042	060	078		
H	002	21.6	21.2	-22.7	17.6	5.9	1.2	70.7
E	024	16.2	-6.1	56.5	8.7	7.3	82.6	1.02
R	029	18.9	-	45.4	17.6	2.9	84.8	1.00
B	047	2.7	24.5	-	17.6	5.9	50.7	1.67
S	Sds	59.4	39.6	79.2	61.5	22		
	Nks	2.7	1.8	3.6	2.8	1.0		

D. Calculation results

As a result, the following species composition is obtained.

Table 11. Obtained Composition of Species

	Herb name	Sdt	Weight, g
002	Metricaria chamomilla	1.2	5
024	Hypericum perforatum	82.6	377
029	Plantago	84.8	387
047	Taraxacum officinale	50.7	231
		219.3	1000

The obtained data has a demonstrative character because the algorithm is stated in a simplified manner, as followed:

1. In reality, not only one herb is taken from the table of efficiency, but several, for its total efficiency to correspond to the coefficient Kp.np.
2. As a result, the probable negative actions of the herbs are taken into account and compensation is made. For instance, most of the herbs cause blood coagulation. Melilotus is normally added for the compensation of this negative effect.

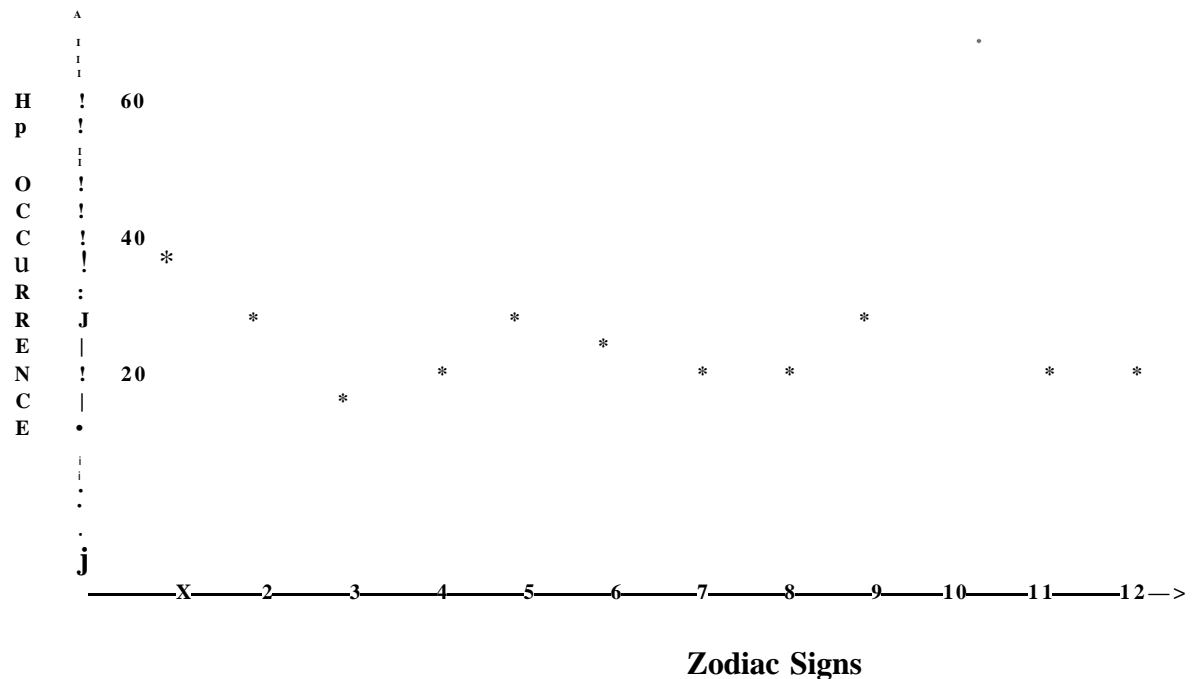
As a result, the complexity of the calculation and the volume of the initial matrix considerably increase, but this article does not cover the detailed explanations. In addition, the doctor is provided with the samples from archives "Computer medical histories", the so-called "Analogue", i.e. the variants which are similar by symptoms and which result in a successful treatment. Therefore, it is the doctor that selects the final variant.

ESTIMATION OF THE PREDISPOSITION TO THE CARDIOVASCULAR DISEASES IN RELATION TO ASTROLOGY

Edited by Danik Martirosyan, Ph.D.

In conclusion of our extensive investigation, we present analysis data of the predisposition to the cardiovascular disease in view of astrology. For example, the curve of dependence in principal cardiovascular diseases is presented. The following graph shows the occurrence of hypertension for different zodiac signs.

Figure 2. Predisposition of Hypertension (HP) in View of Astrology



Notes: 1. Capricorn 2. Aquarius 3. Pisces 4. Aries, 5. Taurus 6. Gemini 7. Cancer 8. Leo 9. Virgo 10. Libra 11. Scorpio 12. Sagittarius

In Table 12, the minimum and maximum of hypertension occurrence is shown.

Table 12. Predisposition in View of Astrology to Cardiovascular Diseases

	Disease	Max		Min	
		Sign	No	Sign	
1	Hypertension	Libra	10	Pisces Scorpio	3 11
2	Hypotonia	Libra	10	Aquarius	2
3	Discirculatory Encephalopathy	Cancer	7	Pisces Scorpio	3 11
4	Cardiac Insufficiency	Taurus Virgo	5 9	Pisces Scorpio	3 11
5	Stenocardia Tension	Virgo Libra Cancer	9 10 7	Aries Scorpio	4 11

The data given in the table correspond in general to the medical astrology data (16).

CONCLUSIONS

1. The data presented above shows a high efficiency in the proposed technique of recording, storage and processing information referring to various patient diseases treated by phytotherapy.
2. A typical symptomatology of every cardiovascular disease was defined based on the complete processing of the entire database. An efficiency of the action of a particular herb upon the particular parameter was defined by means of the kinetic efficiency for every symptom, syndrome and disease in the computer cartography.
3. The theoretical researches conducted by us allowed us to increase the efficiency of phytotherapy of particular patients. A set of herbs for the given particular patients and their concentration in the collection were formulated by us based on the results of the array processing of the efficiency of all the sets of parameters.

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