

The Analysis of integration of Ethnobotanical Data to Information System

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Abstract— Ethnobotanical field studies in Azerbaijan can improve our comprehension not just of customary medical care rehearses, yet additionally give understanding into human wellbeing and deal new answers for food security. In this article an ethnobotanical research was directed to features the customary information on ethnobotanical plants (particularly restorative plants) being utilized by individuals in the eastern part of the Republic of Azerbaijan. In particular, ethnobotanical information are helpful to clinical professionals accused of the consideration of migrant and different populaces that utilization integral and elective medication in that it can give a premise to understanding people clinical convictions about infection, wellbeing, and treatments. In addition, much investigation into the therapeutic and healthy benefit of plants that are as of now underused in standard culture may really prompt the improvement of the food sources, drugs, and correlative and elective medication of tomorrow and gives data about the various uses of plants utilized in their essential medical services. The point of the current investigation was to gather, analyze, and assess data on the utilization of restorative plants among various population groups living using some methodologies in the eastern part of the Republic of Azerbaijan. The ethnobotanical information was assembled through semistructured interviews.

Keywords— ethnobotany, herbal medicine, medicinal plants, ethnobotanical database, ethnobotanical methodologies, information technologies

I. INTRODUCTION

The order of ethnobotany is extensive control which is keen on all investigations about the connection among people and plants. Ethnobotanical information is essential for various logical investigations as pharmacology, veterinary science, and nature. The main purpose of the ethnobotanical information system is to ensure the storage and processing of ethnobotanical properties of plants in a unique database, and to ensure the safety of ethnobotanical knowledge in the information system, to make it easier to access information, and to enable users to freely use it.

Plant species play since a long time ago played significant parts for humankind. The conventional investigation of these plants has demonstrated to be an incredible asset in seeing how unique native networks identify with normal assets, remarkably for clinical and drug applications [1]. Without a doubt, ethnomedicinal concentrate on has been a key hotspot for the disclosure of normal and manufactured medications. Ethnobotanical information keeps on giving a beginning stage to numerous fruitful medication screening projects lately. As per information from the World Health Organization (WHO), around 80% of the total populace, particularly the provincial individuals of rural nations, still fundamentally depend on customary medicals. Then again, the beginnings of more than half of drug medications could

be followed back to ethnomedicine. Quite possibly the most noticeable difference of above populaces bunches is in their vernaculars, which are as yet utilized, especially by the older individuals [2].

Medicinal plants are used to treat of illnesses, specifically sicknesses of the respiratory and skin issues. The significance of the customary utilization of plants to fix and forestall normal and some unprecedented sicknesses had been featured. All gatherings are fused in the neighborhood society and don't distinguish themselves as individuals from various ethnic gatherings, in spite of the fact that they attempt to save their uniqueness by keeping their practices and lingos [2-3]. All things considered, the information shows that the knowledge in regards to the restorative plant use was infrequently joined by safeguarding of semantic variety concerning the plant names. This work adds to improve the information on the customary utilization of plants in the society medication of a district like eastern piece of the Republic of Azerbaijan [4].

Today, Azerbaijanian conventional medicals information is in a condition of transition. By and large, neighborhood conventional information with respect to the climate, wild food and medication sources, and human wellbeing is in a disturbing condition of decay. This has incited specialists to seek after handle studies determined to archive, protecting, and looking at information concerning these remarkable nearby ethnomedical rehearses [5]. Then again, the standard advancement of specific integral and elective solutions for human wellbeing has advanced normal information on some intensely showcased species. Besides, security concerns coming about because of diminished liver capacity and even hepatotoxicity in patients that self-cure with spices (some of the time because of utilization of the inaccurate species) additionally merit the nearby consideration of the clinical local area [4].

Ethnobiological field studies in Azerbaijan can improve our comprehension of conventional medical care rehearses, yet additionally give understanding into human wellbeing and deal new answers for food security [5]. In particular, ethnobiological information are helpful to clinical specialists accused of the consideration of transient and different populaces that utilization reciprocal and elective medication in that it can give a premise to understanding people clinical convictions about disorder, wellbeing, and treatments. Additionally, much investigation into the restorative and dietary benefit of plants that are by and by underused in standard culture may really prompt the improvement of the food varieties, drugs, and integral and elective medication of tomorrow.

The greatest piece of all Azerbaijanian ethnomedicine comprises of the use of customary therapeutic plants. Ethnobotanical campaigns were coordinated in different authentic periods determined to save nearby information

about conventional employments of restorative plants for therapeutic purposes. This multitude of discoveries were for the most part gathered in Azerbaijani language, regularly in neighborhood local area's vernaculars, and put away just in files [6].

Numerous nations have as of late connected with into investigations of customary medication and Azerbaijani specialists start to gather, arrange, break down, and distribute ethnomedicinal concentrates too. As indicated by ethnomedicinal worldwide pattern studies, it is essential to track down examination of food on one hand and medications on the other. These classifications offered probability of creating data that could be requested likewise in examinations from various districts of the world and hence assisted with making correlations between them.

Motivation behind our review was to arrange unpublished recorded material which concerns the utilization of plant items from ethnographic endeavors in Azerbaijan. This review is significant for supplementing Azerbaijani ethnomedicine information base and furthermore can be valuable for explores from different nations to track down matches between studies [7].

The provincial districts of eastern Azerbaijan demonstrate an individual social and natural setting for ethnobotanical studies, attributable to the event of a huge sloping region that is perceived as a focal point for both biodiversity and ethnic varieties. Medicinal plants have addressed, for millennia, the main solution for different illnesses. Phytotherapy actually keeps a significant role in the treatment of numerous illnesses in Shamakhi/Qobustan. Regardless of this reality, a couple of studies have investigated the utilization of plants in Shamakhi/Qobustan people medication [8].

II. MATERIAL AND METHODS FOR GATHERING ETHNOBOTANICAL INFORMATION

Somewhat recently there has been a developing pattern of utilizing quantitative strategies also plans in ethnobotanical research. The quantitative upheaval in ethnobotanical has assisted with helping its allure among understudies and growing specialists just as its status inside the more prominent academic local area. More prominent systemic thoroughness, express regard for inspecting, more solid informational indexes, upgraded logical capacities, and higher certainty are the advantages of a quantitative in the examination results and ends. Additionally, this advancement has assumed a major part in growing the analytical extent of ethnobotanical research.

Before, most field concentrates in ethnobotanical had an engaging concentration, they were busy with gathering arrangements of privately known or utilized plants, making assortments of examples and recording their social names, orders, uses and controls. On the other hand, ongoing examination has had a more scientific direction, described by the cautious estimation of chose bio-social factors, the factual portrayal and investigation of information, the testing of speculations about connections among factors, and every so often the plan of models portraying present statuses or patterns of ethnobotanical information/conduct and their causes or molding factors. This way to deal with research has not just progressing our comprehension of the particular

connections and significance of the organic world for various social gatherings yet in addition provided us with a superior handle of how these connections are designed or in any case impacted by the bigger social and common habitats where they are arranged [11]. Until this point, quantitative strategies have been utilized primarily to concentrate on the social meaning of various plants, ethnomedicinal rehearses, agroecological the board procedures, convictions about creature plant collaborations, the monetary significance of specific assets and natural surroundings, or the biological effects of land and asset use. One more space of utilization identifies with the social elements of ethnobotanical information frameworks, for example, the dispersion and trade of information inside and across networks or social orders, and the elements of steadiness or change of information over the long run. Now and again, the exploration discoveries have been straightforwardly used to help (or scrutinize) asset the board and protection drives. This focuses to one more significant value of quantitative ethnobotanical: its applied importance for preservation and advancement strategy issues.

A significant thought in choosing which technique to utilize is to assess how pertinent the informational index will be according to the examination issue or questions. Assuming the focal point of examination is on the social insight and grouping of plants in a given society then maybe a subjective is more applicable though a quantitative has dominated when the exploration is focused on inquiries of cycle, like the variety as well as change of information/rehearses [9].

An assortment of strategies that can be used to concentrates on various viewpoints or aspects of the unique association among individuals and plants. It may be valuation strategy, a study of various procedures for assessing the social importance or use worth of bio taxa; variety and change, managing proportions of information variety among people, social sub-gatherings and networks, and the deduction of information variety or change over the long haul; transmission, including techniques for examining intergenerational and intercultural information transmission; and conduct, taking a gander at the orderly perception of social exercises and their material results [11].

One of the essential uses of quantitative strategies in ethnobotanical research has been to look into the social worth and meaning of various society taxa. It is not extraordinary to see that as provincial social orders all over the planet perceive and use many natural species in their day to day routines. Nonetheless, it is additionally a fact that not all plants are dealt with similarly by a given social gathering. Through a mix of formal talking and factual investigation, ethnobotanists have had the option to offer a more definite and itemized enthusiasm for the general social significance worth of every single taxon, as estimated by a solitary measurement yet likewise dependent on the local perspective. In addition, the numerical feeling of significant worth has been reached out to envelop other natural units, for example, families, living things and environment types. This kind of activity has been instrumental for testing theories about the connections between eco-social attributes (for example size, territory, the board, outlandish/local species) and convenience. On the other hand, the natural substance of various use classes has been examined as far as

the wealth of species variety that satisfies this capacity. A huge number of plants varieties are considered helpful for a specific use classification is now and again deciphered as proof of the significance of that utilization classification. Such estimations additionally have functional applications, for example, recognizing which species are more significant from a social point of view and in this way setting up protection needs or focuses on that are more pertinent according to a nearby viewpoint. Besides, it has demonstrated to offer a significant apparatus for surveying information variety inside and between networks just as patterns of information change. Quantitative evaluations of the social significance worth of society taxa have commonly depended on rather short and straightforward organized meetings in which the key beginning inquiry is 'How would you utilize any plants?' or its semantic same. A similar normalized meet is directed with a gathering of individuals from the review local area, ideally an example of efficient plan. Later the essential meeting information have been recorded, the all out amount of answers are organized and added up or in any case changed over into mathematical structure utilizing a more complicated method to rate and recognize the utilization worth of various taxa comparative with each other. Many distinctive social significance/importance records have been created, which shift as far as field techniques, data consolidated and equations of computation [11].

Ethnobotanical information was obtained from each primary and secondary sources. The first sources were interview, focus cluster discussion, and observation within the field of the study area, wherever because the secondary data sources were varied and relevant literature review concerning the current study. Ethnobotanical techniques were used to gather data on knowledge and management of ancient employed by the native individuals in the study area. The strategies used for ethnobotanical data assortment for medical were semi-structured interviews following informants, field observation, and group discussion.

Ethnobotanical information was gotten from both essential and optional sources. The essential sources were interview,

group discussion, and perception in the field of the research area, where as the optional information sources were different and pertinent review related to the current investigation. The fieldwork was conducted during spring and summer in 2020-2021 in the eastern part of Azerbaijan [10].

A questionnaire was created to gather data. The study was directed among folks more than fifty years of age, together with healers, teachers, shepherds, housewives etc. throughout the interviews, data was acquired on the local name, area and developing conditions, used components of plants, time of the gathering of raw materials, and therefore the use for healing, food and different purposes, ways of making ready healing product (decoction, mixture, treatments) decoction, infusion, ointments) and numerous dishes. To decide the gathered species, "Flora of Azerbaijan", just as the herbarium of the Herbarium Foundation of the Institute of Botany of the ANAS (BAK) was utilized.

III. THE MAIN ROLE OF MEDICINAL PLANTS IN ETHNOBOTANICAL INVESTIGATION

Our results showed that sixty one medical plant species including to twenty families are used in the investigation to treat many ailments. The surveyed species are listed in Table 1, wherever plant families and species at intervals each family is cited in alphabetical order. In this table, for every biological group gather the information on scientific name (In Latin), family name, vernacular name, useful features of plants, especially etnomedicinal uses and also using plants with some reasons (food, forage, dyes, melliferous, decoration).

Table 1. Using and naming of herbs grown eastern part of the Republic of Azerbaijan

№	Species name in Latin	Vernacular name	Useful features						
			Ethnomedical uses	Food	forage	melliferous	dyes	decoration	other
1	2	3	4	5	6	7	8	9	10
	Amaranthaceae Juss.								
1.	<i>Atriplex tatarica</i> L.		Decoction of aerial parts of plant and seeds used for jaundice, softening the belly, as well as diuretics and vomitive	Young leaves and twigs			+		
2.	<i>Chenopodium album</i> L., <i>Ch. vulvaria</i> L.	Tere, unluca	Decoction of aerial parts of plant and seeds used for liver, spleen, kidneys, skin diseases, gout, headaches and scurvy	Young leaves, twigs and seeds	cattle				
3.	<i>Salicornia europaea</i> L.		Decoction aerial parts of plant and seeds used for softening the belly, against inflammation as well as sudorific remedy	Young leaves (for marinade) and twigs	cattle				
4.	<i>Spinaciatetrandra</i>		Decoction of leaves and seeds	Young leaves					

	Stev. ex M.Bieb.		of plant used for softening the belly during diarrhea						
	Apiaceae Lindl.								
5.	<i>Bifora radians</i> M.B.	Chelemir	Decoction of leaves used for skin diseases and jaundice	Seeds (as a spice), young leaves (as a vegetable)					
6.	<i>Chaerophyllum bulbosum</i> L. = <i>Ch. caucasicum</i> (Hoffm.) Schischk.	Caciq		Roots that are cooked or fried in oil, fresh young twigs					
1	2	3	4	5	6	7	8	9	10
7.	<i>Eryngium campestre</i> L.	Goytikan	Decoction of roots used for gallstone and kidney-stones, skin diseases	Leaves and fresh succulent roots					Used against evil e
8.	<i>Falcaria vulgaris</i> Bernh. = <i>F. sioides</i> (Wib.) Aschers		Decoction of aerial parts of plant and seeds used for stomach diseases, suppurative wounds and ulcers	Sprouts, young twigs and roots			+		
9.	<i>Pimpinella aromatica</i> Bieb., <i>P. peregrina</i> L., <i>P. pseudotragium</i> DC.	Yalanchi cire	Decoction of aerial parts of plant, roots and seeds used for gastrointestinal diseases, malaria and headaches	Young leaves and twigs (as a vegetable), seeds (as a spice)					
	Asteraceae Giseke								
10.	<i>Achillea filipendulina</i>	Boymaderen	Decoction of flowers and leaves used for stomach and heart diseases					+	
11.	<i>Anthemis candidissima</i> Willd. ex Spreng.	Çobanyastighi	Decoction of aerial parts of plant used for dysentery, ulcers, general fatigue and insomnia as well as procoagulant					+	
12.	<i>Carthamus lanatus</i> L.		Decoction of aerial parts of plant and fruits used for jaundice, angina and nervous diseases, as well as sudorific remedy and diuretic	Young stems and roots			+		+
13.	<i>Carthamus oxyacantha</i> M.Bieb.	Sarıççek		As a saffron	Cattle		yellow		
14.	<i>Centaurea iberica</i> Trevir. ex Spreng.	Çaxirtikan	Decoction of aerial parts of plant, roots and fruits used for malaria, as well as diuretic	As a spice		+			
15.	<i>Cirsium arvense</i> (L.) Scop.	Eshshekqanqali	Decoction of flowers used for headache, stomatitis, hemorrhoids as well as sudorific remedy		cattle		Yellow, red		
16.	<i>Echinops sphaerocephalus</i> L.		Decoction of aerial parts of plant, fruits and roots used for skin diseases and radiculitis, as well as sudorific remedy	Succulent part of flowers		+		+	
17.	<i>Helichrysum rubicundum</i> (C.Koch) Bornm. = <i>Helichrysum undulatum</i> Ledeb.		Decoction of flowers used for diseases of gall-bladder, liver and kidney-stones, as well as diuretic					+	
18.	<i>Silybum marianum</i> (L.) Gaertn.		Decoction of seeds and roots used for diseases of liver, jaundice, scalds hemorrhoids, as well as procoagulant	Young twigs	Cattle				+
19.	<i>Tragopogon pusillus</i> M.Bieb.		Decoction of aerial parts of plant and roots used for kidney-stones, skin diseases and scurvy	Green parts of plant and roots		+		+	
20.	<i>Tragopogon dubius</i> subsp. <i>major</i> (Jacq.) Vollm. = <i>T. dubius</i> Scop.	Atyemliyi	Decoction of aerial parts of plant used for lung diseases			+			
21.	<i>Xeranthemum inapertum</i> (L.) Mill., <i>X. cylindraceum</i> Sm.	Supurgeotu	Decoction of aerial parts of plant used for heart, nervous, stomach, liver diseases and toothache					+	used for broom preparation
	Boraginaceae Juss.								
22.	<i>Anchusa azurea</i>		Decoction of flowers and	Young leaves		+	+	+	

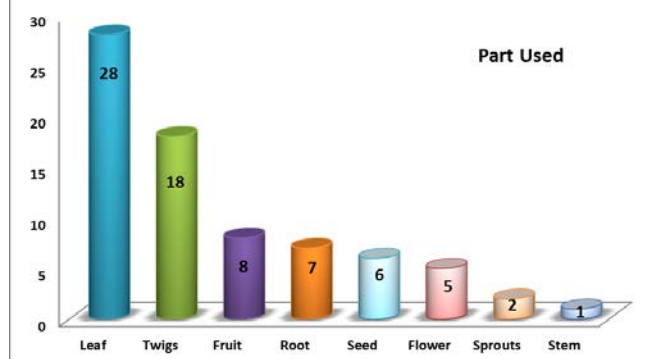
	Mill. = <i>A. italica</i> Retz.		roots used for headache and earache, swellings, as well as fever reducing, and wound healing (ointment)						
1	2	3	4	5	6	7	8	9	10
23.	<i>Asperugo procumbens</i> L.		Decoction of aerial parts of plant used for against inflammatory process in bronchial asthma as shooting	Leaves (as a spice)					
24.	•• <i>Symphytum caucasicum</i> M.Bieb.		Decoction of aerial parts of plant and roots used for blood flux, diarrhea swellings (ointment)	Young leaves			+	+	
	Brassicaceae Burnett								
25.	<i>Alliaria petiolata</i> (M.Bieb.) Cavara et Grande = <i>A. officinalis</i> Andr.z.ex M.B.		Decoction of aerial parts of plant, seeds and roots used for suppurative wounds, ulcers, scalds and furuncles	Young leaves and roots				+	
26.	<i>Capsella bursa-pastoris</i> (L.) Medik		Decoction of aerial parts of plant, seeds and roots used for stomach, kidneys, liver diseases as procoagulant qansaxlatıcı and astringent	Young leaves (as sorrel and nettle substitute) və twigs				+	+
27.	<i>Lepidium campestre</i> (L.) R.Br., <i>L. draba</i> L., <i>L. perfoliatum</i> L.,		Decoction of aerial parts of plant, seeds and roots used for skin, women, eye diseases, headaches and rheumatism	Young leaves, twigs and seeds					
28.	<i>Sinapis arvensis</i> L.		Decoction of seeds used for scurvy sinqa və bladder stones	Young leaves (as a lettuce), twigs and seeds (as a mustard and oil)				+	+
	Cannabaceae Marti nov								
29.	<i>Celtis australis</i> subsp. <i>caucasica</i> (Willd.) C.C.Towns. = <i>C. caucasica</i> Willd.		Decoction of leaves and fruits used for stomach diseases, dysentery and diarrhea	Fruits	cattle	+	+	+	+
1	2	3	4	5	6	7	8	9	10
	Caryophyllaceae Juss.								
30.	<i>Stellaria holostea</i> L., <i>S. media</i> (L.) Vill.	Cicncilim	Decoction of aerial parts of plant skin and liver diseases, blood flux, chills	Above young parts of plant	Cattle	+	+	+	
	Cupressaceae Rich.ex Bartl.								
31.	•• <i>Juniperus communis</i> var. <i>saxatilis</i> Pall.= <i>J. oblonga</i> M.Bieb.	Ardic	Decoction or infusion of peel of stems and fruits used for skin, liver diseases, gout and arthritis	Fruits (for extracts and syrups and confectionery products) and are added to meat dishes and marinade		+	+	+	+
	Elaeagnaceae Juss.								
32.	<i>Elaeagnus rhamnoides</i> (L.) A. Nelson=Hippophae rhamnoides L.	Chaytikani	Infusion, juice and alcoholic tincture used for ulcers of stomach and duodenum, skin diseases and avitaminosis	Fruits (jam, juice)	Poultry	For food		+	+
	Fabaceae Lindl.								
33.	<i>Lathyrus pratensis</i> L.	Gulluce	Decoction of aerial parts of plant and seeds used for gastrointestinal diseases, against inflammation as well as astringent and fever reducing	Green parts of plant and leaves	cattle	red			
34.	<i>Trifolium arvense</i> L., <i>T. pratense</i> L., <i>T. repens</i> L.	Yonca	Decoction flowers and roots used for chill, headaches, scalds, suppurative wounds and ulcers	Young leaves, flowers and twigs	Cattle			+	

	HypericaceaeJuss.								
35.	<i>Hypericum perforatum</i> L.	Yaylaqotu	Decoction of aerial parts of plant and seeds used for liver, gastrointestinal, skin diseases, scalds as well as astringent	Leaves and flowers					
	JuncaceaeJuss.								
36.	<i>Juncus articulatus</i> L., <i>J. bufonius</i> L., <i>J. gerardii</i> Loisel., <i>J. inflexus</i> L.	Ligh	Decoction flowers and roots used for kidneys, skin diseases, as well as painkiller		Cattle				used for floor preparation
	LamiaceaeLindl.								
37.	<i>Mentha longifolia</i> (L.) L.	Yarpız	Decoction of aerial parts of plant and leaves used for stomach, nervous diseases, toothache (as a painkiller) and hypertension	Leaves and young twigs (as a spice)		+	+	+	+
38.	<i>Origanum vulgare</i> L.	Qara ot	Decoction of aerial parts of plant used for gastrointestinal, skin and women diseases, as well as shooting medicine and against inflammation.	Young leaves (as a spice)		+	+	+	+
39.	<i>Salvia verticillata</i> L.		Decoction of aerial parts of plant used for diarrhea as astringent, toothache and furuncle (wound healing)	Young leaves				+	
1	2	3	4	5	6	7	8	9	10
40.	<i>Ziziphora capitata</i> L.		Decoction of aerial parts of plant used for heart diseases	Aerial parts of plant (as tea)				+	
	MalvaceaeJuss.								
41.	<i>Malva sylvestris</i> L., <i>M. neglecta</i> Wallr.		Decoction of aerial parts of plant used for chill, abdominal pain, constipation as laxative	Aerial parts of plant (raw and cooked)		+	+	+	
	Moraceae Link								
42.	<i>Ficus carica</i> L.		Fruits used for gastrointestinal and kidneys diseases, diarrhea	Fruits (fresh and dry)					
43.	<i>Morus nigra</i> L.		Decoction of fruits and leaves used for stomach, heart diseases, as well as astringent and züsdü-rücü, and against worms	Fruits (cooked, fresh and dry)					
	Plantaginaceae Juss.								
44.	<i>Plantago lanceolata</i> L., <i>P. major</i> L.		Decoction of young leaves used for suppurative wounds, cough, scalps as wound healing	Young leaves					
	PlumbaginaceaeJuss.								
45.	<i>Limonium meyeri</i> (Boiss.) Kuntze		Decoction of roots used for diarrhea and inflammation in mouth			+		+	+
	Poaceae Barnhart								
46.	<i>Elymusrepens</i> (L.) Gould=Agropyronrepens (L.)P.Beauv.	Qiyaq	Decoction, infusion of roots used for feebleness	Flour of wheat of plant	cattle				
47.	<i>Avena sativa</i> L.	Sinsil	Decoction of aerial parts of plant used for skin and intestinal diseases, suppurative wounds and rheumatism		cattle				
48.	<i>Koeleriamacrantha</i> (Ledeb.) Schult.= <i>K. gracilis</i> Pers.	Supurga	Decoction of aerial parts of plant used as wound healing		Cattle				
49.	<i>Polygonum aviculare</i> L.	Yol otu	Infusion of aerial parts of plants ulcers of stomach and duodenum, liver, hemorrhoids and blood flux	Aerial parts of plant (cooked and dried)	Poultry	+	+		
50	<i>Rumex crispus</i> L.	Evelik	Decoction of aerial parts of plant, leaves and roots used for ulcers of stomach and duodenum and diarrhea	Young leaves (as a vegetable), (dried form used in dishes and porridge),	Poultry	+	+	+	

1	2	3	4	5	6	7	8	9	10
	Primulaceae Vent.			twigs					
51.	<i>Primula veris subsp. macrocalyx</i> (Bunge) Lüdi = <i>Primula macrocalyx</i> Bunge		Infusion of leaves, flowers, roots used for bronchitis, chill, avitaminosis, as well as fever-reducing	Young leaves and twigs		+	+	+	
	Ranunculaceae Juss.								
52.	<i>Consolida orientalis</i> (J.Gay) Schröding.		Aerial parts of plant and decoction of flowers used for measles, against worms, as well as diuretic			+	+	+	
53.	<i>Nigella arvensis</i> L.		Infusion of seeds used for women diseases, diuretic	Seeds (as a spice)	Cattle				
	Rosaceae Juss.								
54.	<i>Crataegus kyrtostyla</i> Fingerh., <i>C. orientalis</i> Pall.exBieb.	Yemishan	Infusion of flowers and fruits used for heart and skin diseases	Fruits (compote)			+	+	
55.	<i>Filipendula vulgaris</i> Moench = <i>Filipendula hexapetala</i> Gilib.	Qushqonmaz	Decoction of aerial parts of plant, flowers and roots used for urinary bladder, stomach and skin diseases as well as wound healing and astringent	Young leaves, twigs and roots				+	
56.	<i>Fragaria vesca</i> L., <i>F. viridis</i> Weston	Chiyelek	Decoction and infusion of fruits, leaves, rhizomatous used for gastrointestinal, skin diseases, stomatitis and hemorrhoids	Fruits (compote and jam)					
57.	<i>Mespilus germanica</i> L.	Ezgil	Infusion of fruits and leaves used for diarrhea, hemorrhoids, diseases of the throat, as well as astringent	Fruits (eating and used for marinade)		+	+	+	+
58.	<i>Rosa canina</i> L.	İtburnu	Infusion of fruits and rose water of petals used for heart diseases, gallstone and bladder stones, chill and diabetes	Petals of flowers (jam) and fruits (compote or juice)			+	+	
	Violaceae Batsch								
59.	<i>Viola arvensis</i> Murray	Benovshe	Decoction of aerial parts of plant and roots used for chill, constipation, skin diseases, sudorific remedy and laxative	Petals (jam)		+	+	+	+
	Vitaceae Juss.								
60.	<i>Vitis vinifera</i> L. = <i>Vitis sylvestris</i> C.C.Gmel.	Uzum	Fruits used for gastrointestinal and heart diseases	Leaves (dolma) and fruits (jam, juice)			+	+	
	Xanthorrhoeaceae Dumort								
61.	<i>Eremurus spectabilis</i> M.Bieb.	Chirish	Decoction of aerial parts of plant and seeds used for kidney diseases, furuncle	Young leaves (cooked)				+	+

Each part of different plant species is used for a variety of ailments, in some cases more than one organ of the same plant species, especially a combination of parts, is used in the preparation of different therapies and foods. It has also been observed that people have deep knowledge and years of experience in the right combination of different parts of plants to achieve better treatment for the disease in question. In this research, leaves are the most common part of plant organs.

Diagramme 1. parts used of medical plants



Ease of access to the leaves has been cited as an explanation for their frequent inclusion in most preparations. Local residents have also been observed to use leaves to identify medical plants. In addition, leaves are the main photosynthetic organs in plants, and photosynthesis is

transferred to other parts such as the roots, stems, fruits and seeds; These can act as toxins to protect against predators, and some have medicinal value to humans; Diseases can be classified in different ways: dermatological, respiratory, gastrointestinal. According to the information obtained at the study, the most common diseases relate to the skin (dermatology) and the gastrointestinal tract. Medicinal plants have been named to treat these skin diseases. It is treated a similar way gastrointestinal diseases such as stomach pain, gastritis, abdominal pain, intestinal parasites, dysentery. Many medical plants treated diarrhea, vomiting, hepatitis and other related diseases, and various medicinal herbs also treated respiratory and other diseases [7-9].

IV. WHAT IS A DATABASE AND WHAT PARAMETERS USING FOR BUILDING ETHNOBOTANICAL INFORMATION SYSTEM?

The role of complex data standards in the set of ethnobotany databases, their analysis, problems and solution methods to the formation of information systems has been investigated. Standard tools were used to create structured tables. A database management system (DBMS) is a product framework that uses a standard technique to store and sort out information. The SQL server was used as a database for building the ethnobotanical information system. Various parameters have been added here to determine the ethnobotanical characteristics of plants, and an ethnobotany database has been prepared according to these parameters. Ethnobotanical database is a structured body of related information [12]. The software used to manage and manipulate that structured information is called a DBMS. The ethnobotanical database model consists of entities and relationships. Entities are the things that will be stored information about in the database. For example, it is chosen to store information about plants and the districts where has grown in. In this case, a plant would be one entity and a

district would be another. Relationships are the links between these entities. Relationships come in various degrees. They can be one-to-one, one-to-many (or many-to-one), or many-to-many. In Ethnobotanical database tables, each column or attribute describes some piece of data that each record in the table has. Each row in the table represents a single plant record [15].

It could be identified a plant by name or by plantID. The primary key is the column or set of columns that will be used to identify a single row from within a table. In this case will be made plantID the primary key. This will make a better key than name because it is common to have two plants with the same name. Foreign keys demonstrate the links between tables [13-14].

The database schema simply means the structure or design of the database.

It has been built the ethnobotanical database in MS SQL Server which consists of 61 plants and their ethnobotanical parameters shown below. It is possible to use some SQL server transaction language and codes for researching information that is need as some parameters. At that time, the table will be structured according to investigated information and data will be shown on the screen.

```
select * from BotanicalCharacteristics where SpreadinAzerbaijan= 'Qobustan'
```

```
select * from BotanicalCharacteristics where UsingPlantForms= 'decoction'
```

```
select * from BotanicalCharacteristics where FamilyNameinLatin= 'Apiaceae Lindl.'
```

```
select * from BotanicalCharacteristics where UsedPlantParts= 'leaves'
```

In this table which was built SQL server has been demonstrated some parameters of ethnobotanical plants and information about them.

Table 2. The view of ethnobotanical table in SQL server

PlantID	FamilyNameinLatin	SpeciesNameinLatin	VernacularName	EthnobotanicalUses	UsedPlantParts	UsingPlantForms	SpreadinAze
1	Amaranthaceae Juss.	Chenopodium album L., Ch. ...	Tərə, unluca	jaundice , softening the belly, as well as diur...	aerial parts of plant and seeds	Decoction	Qobustan
2	Apiaceae Lindl.	Biforadians M.B.	Çalampir	skin diseases and jaundice	leaves	Decoction	Qobustan
3	Asteraceae Giseke	Anthemis candidissima Willd...	Çobanyastığı	dysentery, ulcers, general fatigue and insom...	aerial parts of plant	Decoction	Qobustan
4	Asteraceae Giseke	Centaurea iberica T revir. ex ...	Çaxırtkanı	malaria, as well as diuretic	aerial parts of plant, roots and ...	Decoction	Qobustan
5	Apiaceae Lindl.	Eryngium campestre L.	Göytikan	gallstone and kidney- stones, skin diseases	roots	Decoction	Qobustan
6	Apiaceae Lindl.	Pimpinella aromatica Bieb., ...	Yalanç cira	gastrointestinal diseases, malaria and heada...	aerial parts of plant, roots and ...	Decoction	Qobustan
7	Asteraceae Giseke	Cirsium arvense (L.) Scop.	Eşşəkqanqalı	headache, stomatitis, hemorrhoids as well as...	flowers	Decoction	Qobustan
8	Asteraceae Giseke	Xeranthemum inapertum (L.)...	Süpürgəotu	heart, nervous, stomach, liver diseases and t...	aerial parts of plant	Decoction	Qobustan
9	Asteraceae Giseke	Achillea filipendulina	Boymadaran ...	stomach and heart diseases	flowers and leaves	Decoction	Qobustan
10	Asteraceae Giseke	Tragopogon dubius subsp. ...	Atyemliyi	lung diseases	aerial parts of plant	Decoction	Qobustan
11	Caryophyllaceae Juss.	Stellaria holostea L.,	Cicincim	skin and liver diseases, blood flux, chills	aerial parts of plant	Decoction	Qobustan
12	Cupressaceae Ri...	Juniperus communis var. sa...	Ardic	skin, liver diseases, gout and arthritis	peel of stems and fruits	Decoction or inf...	Qobustan
13	Elaeagnaceae Ju...	Elaeagnus rhamnoides (L.) ...	Çaytıkanı	for ulcers of stomach and duodenum, skin di...	fruits	Infusion, juice a...	Qobustan
14	FabaceaeLindl.	Lathyrus pratensis L.	Güllüce	gastrointestinal diseases, against inflammatio...	aerial parts of plant and seeds	aerial parts of pl...	Qobustan
15	FabaceaeLindl.	Trifolium arvense L.	Yonca	chill, headaches, scalds, suppurative wound...	flowers and roots	Decoction	Qobustan
16	HypericaceaeJuss.	Hypericum perforatum L.	Yaylaqotu	liver, gastrointestinal, skin diseases, scalds a...	aerial parts of plant and seeds	Decoction	Qobustan
17	JuncaceaeJuss.	Juncus articulatus L.,	Lığ	kidneys, skin diseases, as well as painkiller	flowers and roots	Decoction	Qobustan
18	LamiaceaeLindl.	Mentha longifolia (L.) L.	Yarıpız	stomach, nervous diseases, toothache (as a ...	aerial parts of plant and leaves	Decoction	Qobustan
19	LamiaceaeLindl.	Origanum vulgare L.	Qaraot	gastrointestinal, skin and women diseases, a...	aerial parts of plant	Decoction	Qobustan
20	Poaceae Barnhart	Poaceae Barnhart	Qıyaq	feebleness	roots	Decoction, influ...	Qobustan
21	Poaceae Barnhart	Avena sativa L.	Sinsil	skin and intestinal diseases, suppurative wo...	aerial parts of plant	Decoction	Qobustan
22	Poaceae Barnhart	Koeleria macrantha (Ledeb.)...	Süpürgə	wound healing	aerial parts of plant	Decoction	Qobustan
23	Polygonaceae Juss.	Rumex crispus L.	Əvəlik	ulcers of stomach and duodenum and diarrhea	aerial parts of plant, leaves an...	Decoction	Qobustan
24	Rosaceae Juss.	Crataegus kytostyla Fingerh.	Yemişan	heart and skin diseases	flowers and fruits	Infusion	Qobustan

V. CONCLUSION

In this article features the significance of detailing the eastern typical of areas of Azerbaijan that have as of recently been ineffectively examined. Shamakhi/Qobustan is still barely investigated according to an ethnobotanical perspective in spite of the fact that it is described by a high floristic variety. Data on species utilized in society medication of this area showed that the greater part of them were wild and developed plants notable in the Azerbaijan ethnobotany for their medical care and corrective properties. All things considered some strange uses were found, specifically concerning a few poisonous plants and uncommon or endemic species. Azerbaijanian custom ethnobotanical information, populace bunches in this district keep up with some selective people cures. Such nearby information which is displayed above is socially critical and can give data to creating future explores and advancing ethnopharmacological progresses. This perception upholds the possibility that a few contrasts are kept up with among populace gatherings, albeit the information on the restorative plant use isn't joined by safeguarding of etymological variety concerning the plant names. Moreover our investigation of plant information as indicated by sociologic factors adds to a superior comprehension of elements that influence changes in plant uses and discernments in various sociocultural settings. Albeit the primary concentration in this article has been on quantitative ethnobotanical strategies, additionally underline that these are intended to supplement, instead of subbing, subjective techniques for information assortment and investigation. It is very conceivable that some kind of subjective appraisal of social classes, implications and practices should be attempted before any counting can even start. The most fascinating contextual analyses are those that figure out how to coordinate various kinds of information and techniques. Regardless, it is beneficial to perceive the exceptional worth of quantitative information and numerical investigation, particularly as to uncovering the distributive and dynamic boundaries of human-plant connections. Quantitative information assortment and investigation are not in every case simple to do yet the advantages plainly offset the expenses.

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