The Use of Medicinal Plants and Phytotherapy in the Konjuh Mountain of Bosnia and Herzegovina

ABSTRACT

The plant kingdom is a crucial component of human nutrition and, consequently, the foundation of human sustenance. Humans have long recognized that specific plant-based foods provide essential substances that contribute to health, leading to the discovery of their medicinal properties. As a result of such chemical investigations, there has been an effort to synthetically produce the same or similar compounds that could replace natural products from the plant world in medical treatment and health maintenance. Consequently, modern medicine has increasingly relied on synthetic drugs, often overlooking the therapeutic value of many plants. However, despite this neglect, there is a growing movement to reintegrate effective natural plant compounds into the treatment of various diseases, as synthetic chemical compounds cannot fully substitute for plant-derived medications.

The objective of this study was to collect and identify medicinal plant species in the Konjuh Mountain area across seven locations with varying geoecological characteristics. Field research was conducted in three municipalities within the Tuzla Canton (Kladanj, Živinice, and Banovići), covering seven sites, each measuring 3,000 m², with altitudes ranging from 560 to 1,100 m. During the investigation, 109 medicinal plant species were identified, including endangered and endemic varieties. Additionally, a survey was conducted among the local population of Konjuh Mountain regarding their knowledge, recognition, and collection of medicinal herbs. Results from the survey, which involved 50 participants of various ages, indicate that alternative medicine holds a significant role in treatment approaches and is viewed as a more accessible method of healing.

Keywords: medicinal, plants, Konjuh, survey, treatment

1. INTRODUCTION

With approximately 6,340 reported species of vascular plants, the Balkan region (Turrill, 1929), in comparison to the 10,500 species recognized in Flora Europaea, is one of the most significant centers of biodiversity in Europe. The ethnobotanical studies of the Balkan Peninsula, conducted at the beginning of the 21st century, confirmed the widespread use of medicinal plants in the everyday life of the local people (B. Zlatković *et al., 2014;* S. Kayani *et al., 2014;* K. Šavikin *et al. 2013;* B. Šarić-Kundalić *et al., 2011;* Šarić-Kundalić et al., 2010; S. Jarić *et al., 2007).* Within its 51,129 km², Bosnia and Herzegovina (Western Balkan Peninsula; Southeast Europe) is a predominately rural country and about 63% of the total land area is forest or forest land (FAO Regional Office for Europe and Central Asia, 2015; Softić, 2015). The country is mostly mountainous: mountains: 42%; karsts: 29%; hills: 24%; plains: 5%; (Redžić, 2007). River valleys interrupt the mountains, and this results in highly diverse ecosystems including endemic and relict plants. BiH belongs to one of the biodiversity hot spots of Europe (Grimmett et al., 2017) as the flora and fauna are considered to be some of the most diverse in Europe including over 5000 confirmed taxa of vascular plants (The World Bank, 2008) with about 3300 species of 161 families of the spermatophyte (Federal Ministry of Environment and Tourism, 2009). Currently, 120 endemic species are known, which have found their habitat especially in cliffs, canyons and mountains kettles (Environmental Fund of the Federation of Bosnia and Herzegovina, 2018–2022). The number is, however, estimated to be much higher

(Federal Ministry of Environment and Tourism, 2009). Despite the substantial floristic diversity of this country, data on the use of plants in traditional medicine is scarce. Apart from one "systematic study" pertaining to the entire country (Redžić, 2007), and research focusing on the central, western, and southern parts of Bosnia and Herzegovina (Šarić-Kundalić et al., 2011; 2010), as well as the medicinal flora of Konjuh Mountain (Huseinović et al., 2023), no other systematic investigations exist.

The flora of Konjuh Mountain is particularly diverse and unique, offering an abundance of free, natural, healthy, and unpolluted food (Huseinović et al., 2021; 2023). The vitamins, minerals, and enzymes present in wild edible herbs confer medicinal properties, as these substances enhance the body's resilience, positively influence metabolic processes, and improve overall health. Some edible plants also exhibit therapeutic effects for respiratory, digestive, and urinary ailments. Additionally, many wild aromatic plants are utilized to enhance appetite, improve digestive processes, and alleviate gastrointestinal disturbances (Huseinović, 2017; Grlić, 1990). Medicinal herbs are employed in human phytotherapy, specifically the parts of these herbs or their extracts (Huseinović et al., 2023; Huseinović et al., 2017; Šarić, 1989; Schafner, 1999).

The government of the Tuzla Canton has adopted a law designating part of Konjuh Mountain, covering 8,016 hectares, as a Protected Landscape "Konjuh," thereby listing this area as part of Bosnia and Herzegovina's cultural heritage. The Konjuh massif is covered with dense forest communities predominantly composed of conifers (pine, fir, and spruce), beech, maple, and, to a lesser extent, oak. In the areas of Zelemboja, Hambarišta, Zidine, and Mali Konjuh, the rare and medicinal gentian (*Gentiana lutea*) is found, which is protected and endangered on this mountain, and unfortunately very rare due to overexploitation. Konjuh serves as a habitat for diverse medicinal and wild edible plants, with the most widespread being wild thyme (*Thymus serpyllum*).

Ethnobotanical studies are of great importance due to the fact that they can provide new guidelines for nature conservation, sustainable development and proper management of resources. In view of this, the extent of exploitation of locally important resources should be revealed, and the importance of preserving rare and endangered plant species and their habitats (such as *Gentiana lutea*) should be emphasized. One of the most common approaches in this regard has been to link the use of plants with issues of their conservation, since the most important species suffer the greatest pressure from harvesting (Savić, 2019).

The aim of this study is to systematically gather data on the use of wild medicinal plants in the therapy of individuals from the Konjuh Mountain region (northeastern Bosnia and Herzegovina). Specifically, we will (i) supplement our current knowledge by focusing on northeastern Bosnia and Herzegovina, (ii) strengthen and expand the relevant database for this area through the creation of a taxonomic and phytogeographic study, specifically selecting villages and locations that have not been previously studied and involving individuals of all age groups, and (iii) determine the level of recognition, knowledge, and use of medicinal herbs among the local population.

2. MATERIALS AND METHODS

The research conducted in this study consists of both field and laboratory components. Field investigations were carried out in three municipalities within the Tuzla Canton (Kladanj, Živinice, and Banovići) across seven sites, each covering an area of 3,000 m², with altitudes ranging from 560 to 1,100 m. At each site, parameters were determined from the lowest to the highest elevations, including topographic points, altitude, geographic coordinates, slope, and aspect of the terrain (GPS), edaphic factors (according to Braun–Blanquet, 1964), identification in accordance with the principles of the International Code of Phytosociological Nomenclature (Weber et al., 2000), and the creation of photographic documentation. During the collection of plant material from natural habitats, consideration was given to the quantity of material harvested and its sustainability. Plant species identification was conducted based on references (IUCN, 1996; Domac, 1994; Gursky, 1990; and Šilić, 1984).The collected plant samples were collected and preserved in the herbarium of the Faculty of Science at the University of Tuzla, Bosnia and Herzegovina.

Among the methods used, it is important to highlight the survey method for interviewing respondents, the preparation of a herbarium, and the development of analytical and synthetic tables presenting all medicinal plants along with their chemical compositions and therapeutic effects. Ethnobotanical interviews were utilized as one of the primary methods for data collection. All participants provided consent to participate in the research. The ethnobotanical survey form included: the name and age of the respondent, area/village, time of conduct, local name of the medicinal herb, plant part used, preparation method, and purpose of use. The study involved discussions with approximately 50 respondents. Up to 20 years old, 10 respondents, 5 men and 5 women.

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From 20-40 years, 20 respondents (10 men and 10 women), and over 40 years 20 respondents (10 men and 10 women).Collected specimens were herbarium-preserved using standard methods (Nikolić, 1996). Following taxonomic identification (Domac, 1994), the herbarium specimens were labeled with their Latin name, vernacular name, collection locality, and the date of collection.

To enhance the interpretation of medicinal herb usage, various biomedical works will be utilized (Ranđelović et al., 2012; Leporatti et al., 2003; Ivancheva et al., 2000).

3. RESULTS AND DISCUSSION

During this research on Konjuh Mountain, 109 medicinal plant species were identified across seven sites. Some plant species were found in specific micro-locations, which may be a result of climatic or anthropogenic factors, while certain species were present at a larger number of sites.

It is important to note that a significant number of the identified medicinal plants are utilized in both traditional and official phytotherapy, indicating the importance of these resources in generating pharmacoeconomic benefits (De Fao et al., 1993; Avci et al., 2006).

3.1 Phytocenological recording on the Konjuhmountain

Seven phytosociological recordings were conducted in the field to encompass various plant communities, aiming to gather as much data as possible on the medicinal plants present on Konjuh Mountain. The phytosociological recordings were carried out at the following locations: Tuholj, GornjaVišća, Katranica, Zlaća, Paučko Lake, MuškeVode, and Brataljevići.

Table 1.Characteristics of the locations where plant material was collected

Recording number	**1**	2	3	4	5	6	7
Site	Tuholj	Gornja Višća	Katranica-Heljdovište	Zlaća	Paučko jezero (Gorsko oko)	Muške vode	Brateljevići
Altitude	1000 m	750 m	920 m	600 m	650 m	753 m	560 m
Exposition	South	East	South	South	South	East	East
Inclination	Downhill	Steep	Steep	Steep	Flat	Steep	Flat
Size of the explored area	3000 m^2	3000 m^2	3000 m^2	3000 m^2	3000 m^2	3000 m^2	3000 m^2
Coverness	90%	100 %	90 %	90 %	80 %	75 %	80 %

3.2 Pharmacodynamic analysis of medicinal herbs from Konjuh Mountain.

All medicinal plant species are presented in tabular form along with their general characteristics, chemical composition, and therapeutic effects. A large number of plant species exhibit multiple medicinal properties, as well as nutritional benefits, which is one of the primary reasons to increase the use of medicinal herbs not only for treatment purposes but also for health protection.

Table 2: Overview of medicinal herbs from Konjuh Mountain by families.

Adoxaceae						
O/N	**Plant species**	**Local name**	**English name**	**Chemical disposition**	**Used part of the plant**	**Medicinal use**
1.	*Sambucus nigra* L.	Bazga	Black elder	essential oils, tannin, sugar, resins, acids	fl, l, fr, bk, rt	analgetic, antidepressan antineuralgic, antioxsida antireumatic, antiseptic,

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2.	*Sambucus ebulus* L.	Abdovina	Danewort	tannins, flavonoids, essential oil, resin, sugars, choline, and organic acids	fr, l, rt	urinary system, cough m hoarseness.
			Aristolochiaceae			
3.	*Asarum europaeum* L.	Kopitnjak	Asarabac ca	Essential oils containing alkenylbenzene, aromatic and toxic substance azarone	L	It is used in folk medicin induce vomiting and exp
			Aquifoliaceae			
4.	*Ilex aquifolium* L.	Obična božika	Holly	bitter substance, ilicin, wax, gum, ilex acid	L, fr	depression, neurosis i h
			Anacardiaceae			
5.	*Cotinus coggygria* Scop.	Rujevina	European smoketree	tannin, essential oils, coloured materies, vitamin C, E etc.	L, bk	diarrhea, periodontitis, h ulcer, and mouth ulcers
			Apiaceae			
6.	*Daucus carota* L.	Divlja mrkva	Wild carrot	carotene, vitamin A, sugar, B-group vitamins, vitamin H, vitamin E, pantothenic acid, essential oil, pectin, glutalin, lecithin, asparagine, cellulose, mucilage, and starch	rt, sd, l	anemia, arteriosclerosis, occurrence of worms, in stomach ulcer, relieves h laxative, sore throat or e colds and flu, skin disea as well as for urinary tra
			Araliaceae			
7.	*Hedera helix* L.	Bršljan	Ivy	Triterpenic saponins, flavonoids, pollens, sterols, and essential oil	L	bronchitis, cough, skin acne, blisters and callu growths in the nose, kidney stones, arteriosc
			Asteraceae			
8.	*Achillea millefolium* L.	Stolisnik	Yarrow	essential oil, anhilin, matricin, flavonoids, and salicylic acid.	Wp	stimulates kidney functio rheumatism, gout, noseb
9.	*Artemisia absinthium L.*	Pelin	Artemisia	sesquiterpene lactones, essential oil, flavonoid artemisinin, tannins, saponins, organic acids, vitamin C, carotene, Mb, Se, Br	L, fl	It is used for poor gastri digestion, and gastric di functioning of hormonal
10.	*Cichorium intybus* L.	Vodopija	Chicory	levulose, fructose, pentosan, alkaloids, bitter glycoside intibin, proteinaceous substances, sugar, resin, high in potassium.	Wp	enhances the function liver, circulation, and act
11.	*Cirsium arvense* (L.) Scop.	Poljski osjak	Canada thistle	Inulin and proteins	Rt, l	It is an edible plant; you be consumed.
12.	*Sonchus arvensis* L.	Poljski ostak	Field sowthistle	mineral salts, vitamin C, and proteins.	Rt, l	anti-inflammatory effects calms the nerves.
13.	*Hieracium pilosella* L.	Zečja loboda	Hawkwee d	bitter substances, tannins, resins, mucilage, flavonoid derivatives.	Wp	treatment of certain s bladder inflammation, ki
14.	*Petasites hybridus* (L.) G. Gaertn. & al.	Obični lopuh	Butterbur	glycosides, coumarins, organic acids, Mb, Se	L, rt	For pneumonia, bronchit cramps, headaches, mig gout, nerve pain, and fo narcotics and as an anal
15.	*Taraxacum officinale* F. H. Wigg.	Maslačak	Dandelion	bitter substances, resins, wax, essential oil, flavonoids, inulin, heterosides, carbohydrates, minerals, vitamin C, provitamin A, K, Fe, N, Mg, organic acids.	Rt, l, fl	For the treatment o gallbladder, blood, in water diseases, diab insufficiency, weak blad the bladder, in cases o conditions, Alzheime

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						osteoporosis (root, leaf,
16.	*Matricaria chamomilla* L.	Kamilica	Chamomile	essential oils, phytosterols, tannins, glycosides, mucilage, vitamin C, niacin, mucilage, natural gum, proteins, essential oils, and other substances.	Fl, l	anti-inflammatory, help conditions, and with var infants and children).
17.	*Tussilago farfara* L.	Podbjel	Coltsfoot	Glycosides, saponins, carotenoids, polysaccharides, essential oil, flavonoids, malic, tartaric, and ascorbic acid, macro and microelements.	Wp	Lung and respiratory tra by a severe cough.
18.	*Leucanthemum vulgare Lam.*	Ivančica	Ox-eye Daisy	Aromatic oils, vitamin C, carotene	L, rt, fl	The plant is edible, it is a because it has a strong a
19.	*Arctium lappa*	Čičak	Great burdock	Vitamin C, carotene, mucus, tannins and essential oils	Rt, st, l, pt	Root tea is traditionally a for skin diseases, and as also a diuretic.
20.	*Crepis biennis L*	Dvogodišnji dimak	Rough hawksbeard	Vitamins and minerals	L	It is used in food
				Alliaceae		
21.	*Allium ursinum* L.	Srijemuš	Ramson	Glycoside allicin, essential oil, ascorbic acid, mineral substances.	L, bl.	Reduces fat content in pressure, used for arte issues, and externally fo
				Asperagaceae		
22.	*Convallaria majalis* L.	Đurđevak	Lily-of-the-valley	Glycosides, flavonoids, alkaloids, saponins, malic and citric acid, essential oil, vitamin C, macro and microelements.	Fl, l, rt	Glycosides convallatoxi properly dosed, help wit
				Aspleniaceae		
23.	*Ceterach officinarum* Willd.	Zlatinjak	Rustyback fern	Tannin and organic acids.	ap	Treatment of spleen dis to promote sweating, an
24.	*Asplenium scolopendrium* L.	Jelenjak	Hart's tongue fern	Minerals, vitamins and mucus	l	It is used for diarrhea, ve used for snake bites, cir use is present in cosmet
				Betulaceae		
25.	*Betula pendula* Roth	Breza	Silver birch	Sugar, a lot of K, Ca, and Fe. The leaves are rich in vitamin C, carotene, vitamin E, and minerals.	L, bd, bk	Used for rinsing in bacte diseases of the urinary t kidneys, as well as for rh
26.	*Corylus avellana* L.	Lijeska	Hazel	Betulin, oil, minerals, quercetin, caffeic acid.	L, fr, bk	In cases of inflamma hemorrhoids, for diarrh bleeding, exhaustion, an
				Baraginaceae		
27.	*Pulmonaria officinalis* L.	Plućnjak	Lungwort	It contains tannins with a lot of polyphenols, a small amount of alkaloids, carotene, and vitamin C.	Ap	Lung diseases, pain in th cough, valued in folk me for inducing sweating, cl against inflammatory co and for bladder, stomach
28.	*Symphytum officinale* L.	Gavez	Comfrey	Vitamin C, carotene, alkaloids	Rt, l	It is used as food, it is a heal various wounds and
29.	*Myosotis sylvatica* Ehrh. Ex Hoffm.	Šumska potočica	Wood forget-me-not	Vitamins, minerals and iron	Ap	It is used to purify the bl stimulates the work of th ensures a normal amoun acts as a diuretic. Excell arthritis and gout. Treats

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			Brasicaceae			
30.	*Capsella bursa-pastoris* (L.) Medik	Rusomača	Shepherd's purse	Amines, glycosides, flavonoids, tannins, organic acids, inositol, saponins, vitamin C, thiamine, riboflavin.	Wp	Treatment of various external and internal, w assistance during preg helps balance blood pres
31.	*Armoracia rusticana* G. Gaertn. & al.	Hren	Horseradish	Vitamin C, Carotene	Rt, l	Edible plant, natural anti improves urine output, c strengthens immunity. P
			Caprifoliaceae			
32.	*Valeriana officinalis* L.	Ljekoviti odoljen	Valerian	Essential oil, alkaloids, organic acids, tannins, glycosides, phytosterols, resins, Fe, Se	Rt	Treatment of insomnia, states, i.e., nerve dis neuroses, heart disea stomach and intestines, organ diseases, wom system diseases, high cramps, painful conditi and gallbladder pain and
33.	*Knautia arvensis* (L.) DC.	Poljska prženica	Scabious	Tannins and riboflavine.	L	For external dressing an cleanses the blood, redu plague and urticaria.
			Caryphyllaceae			
34.	*Silene vulgaris* (Moench) Garcke	Pucavac	Bladder Campion	Saponin, carotene, and vitamin C.	L, rt	The young leaves are before the plant bloom stews.
35.	*Stellaria media* (L.) Cirillo	Mišjakinja	Greater stitchwort	Vitamin C, Carotene, Fe, K, Ca, Zn, Oxalic acid	Ap	It is used in food. Antisep diuretic, laxative
			Crassulaceae			
36.	*Sempervivum tectorum* L.	Čuvarkuća	House leek	Polysaccharides, tannins, mucilage, flavonoids, alkaloids, resin, calcium malate, triglycerides, formic and malic acid.	L	External use as a bal poorly, burns, eye and cramps. As a tea, it is fever, heavy menstrual with intestinal worms.
			Cannabaceae			
37.	*Humulus lupulus* L.	Hmelj	Hop	Cones contain resinous substances that represent a mixture of hop acids, essential oil, flavonoids, coumarins, tannins, alkaloids, and vitamins.	Wp	Insomnia and mental un for spleen and liver disea inflamed breasts, bedwe emissions, water disease sprains and swelling, for bladder.
			Convolvulaceae			
38.	*Convolvulus sepium* L.	Divlji ladolež	Hedge bindweed	Resin, tannin, flavonoids.	Rt, l	Resin acts as a laxative.
			Carnaceae			
39.	*Cornus mas* L.	Dren	Cornelian cherry	The fruit contains sugar, organic acids, tannins, vitamins, and phytoncides. The bark contains the glycoside cornin, tannins, and organic acids. The leaves contain vitamins C and E.	Fr, bk	From the fruits, syrup for or they are processed in to the astringent effect o treatment of diarrhea.
			Crassulaceae			
40.	*Sedum rupestre* L.	Stjenoviti	Stonecrop	Rutin, various glycosides,	Sh	Bowel diseases – parasi

		ždnjak		alkaloids sedine, sedamin, piperidine, resin, rutin, tannin, resins, gums, tannic acids, sugar, mucilage, vitamin C.		intestines, polyps and he the blood vessels, in arte pressure, diseases of th tract, liver and gallbladde
			Cupressaceae			
41.	*Juniperus communis* L.	Obična borovica	Juniper	Essential oil, flavonoid glycosides, tannins, invert sugar, pectin, gums, resins, and waxes.	Wp	Juniper acts as: antibact rheumatic, antiseptic, ar detoxifying, digestive, di cardiotonic, carminative, spasmolytic, urinary anti
			Dennstadetiaceae			
42.	*Pteridium aquilinum* (L.) Kuhn	Bujad	Bracken	Starch, tannin, mucilage, bitter compounds, fatty and essential oil, mineral substances.	Sh, rh	Ragweed is used in the intestinal catarrh.
			Dryopteridaceae			
43.	*Dryopteris filix-mas* (L.) Schott	Muška paprat	Male fern	Filicin, filmaron, aspidinol, tannins, flavonoids, and essential oil.	Sh	The young shoots are when they are still curled
			Ericaceae			
44.	*Vaccinium myrtillus* L.	Borovnica	Bilberry	Tannins, anthocyanins, flavonoid glycosides, organic acids, pectin, invert sugar, vitamin C, and beta-carotene.	L, fr	It is used for the treatme tract diseases. Due to t them their blue color improving vision.
			Equisetaceae			
45.	*Equisetum arvense* L.	Poljska preslica	Horsetail	Silicic acid, flavonoids, derivatives of caffeic acid, quartz acid, pyridine alkaloids, tannic acid, resin, bitter substances, sitosterol, vitamin C, carotenoids, K, Ca, Na, S.	Only sterile green stems without flower spikes	In cases of kidney stone cleanses the blood, used metabolic diseases, infla water diseases, willow h tonsils, and anemia, for inflammation, for fistulas slowly
			Fabaceae			
46.	*Lotus corniculatus* L.	Žuti zvjezdan	bird's-foot-trefoil	Cyanogenic glycosides lanamarin and lotaustralin, tannins, mucilage, essential oil, vitamin C, and carotene.	L,fl	It improves heart fu (sedative) effect, a weakness, and bloatin relieves cramps, and has
47.	*Melilotus officinalis* (L.) Lam	Kokotac	Yellow melilot	Coumarin, flavonoids, resin, tannin, mucilage, bitter substances.	The tips of the plant's branches in bloom	Cough, uterine and i diseases, headaches, n gout, diseases of the insomnia, neuralgias, an well.
48.	*Trifolium repens* L.	Bijela djetalina	White clover	Carbohydrates, coumarins, isoflavonoids, flavonoids, saponins, acids, resins, essential oil, fats, vitamins, and minerals.	L, fl, rt	It is used against gout blood cleansing tea.
49.	*Trifolium pratense* L.	Crvena djetalina	Red clover	Trifolin, essential oil, vitamin C.	L, fl	In cases of menopause, osteoporosis, for expect colds.
50.	*Vicia cracca* L.	Ptičija grahorica	Bird vetch	Carbohydrates, flavonoids, saponins, fats, vitamins, and minerals.	Sd	The seeds are edible, preparation of porridge.
51.	*Anthyllis vulneraria* L.	Pravi	Kidneyvetc	Tannins, saponins, pigments	Fl	It is used for the treatme

		ranjenik	h	from the flavonoid group: 8anthophylls and anthocyanin, mucilage.		slowly.
52.	*Vicia grandiflora* Scop.	Velecvijetna grahorica	Bigflower vetch	Carbohydrates, flavonoids, saponins, fats, vitamins, and minerals.	Ap	It serves as a good fodd
53.	*Ononis spinosa* L.	Zečiji trn	Spiny restharrow	Vitamin C, carotene, K and Ca, essential oils, citric acid, phytosterol, phenols	Rt, sh	For the treatment of kidr rheumatism and gout
				Fagaceae		
54.	*Quercus petraea (*Matt.) Liebl	Sessile oak	Hrast kitnjak	Tannins, organic acids, flavonoid quercetin, triterpenoids, steroids, catechins, pantothenic acid, vitamins B1, B2, B6, C.	L, bk, fr	Treatment of inflamed m stomach and intestine catarrh, diarrhea, bi inflammation – nephri issues, and in the form inflammation of the o esophagus, for regulat anal bleeding.
				Gentianaceae		
55.	*Gentiana lutea* L.	Srčanik	Great yellow gentian	Bitter glycosides, trisaccharidegencianoza, alkaloid gencianin, xanthone, ascorbic acid, flavonoids.	Rt	It stimulates the secretio juice, helps with stomacl blood, treats anemia, fai sensitivity, liver and sple bile secretion, strengthe cases of lack of appetite recommended for heart-
				Hypericaceae		
56.	*Hypericum perforatum* L.	Kantarion	St. Johns wort	Tannins, flavonoids, essential oil, resins, saponins, carotene, vitamin C, nicotinic acid, choline, traces of alkaloids.	St, l, fl	Various skin impurities, r varicose veins, digestive system, reproductive sys nervous system, endocr
				Iridaceae		
57.	*Crocus vernus* (L.) Hill	Proljetni šafran	Spring crosus	Proteins, lipids, essential oils, pectin, and cellulose.	Bl	The bulb is edible as a plant, and due to its earl first sources of forage fo
				Lamiaceae		
58.	*Ajuga reptans* L.	Puzava ivica	Bugleweed	Iridoid glycosides, diterpenoid glycosides.	L, sh	It is useful for treating co
59.	*Betonica officinalis* L.	Bukvica	Betony	Alkaloids (betonicin, stachidrin, trigonelin), tannins.	Wp	Strengthening the nerve jaundice, asthma, heartb gout, gastric catarrh, vor
60.	*Mentha piperita* L.	Paprena metvica	Peppermint	Essential oil of menthol, carotene, betaine, organic acids, Zn, Se, Mb, Sr.	wp	It alleviates pain, sooth diarrhea, promotes bette nausea and irritation c antiseptic effects, as difficulties in dysmenorrh
61.	*Melissa officinalis* L.	Matičnjak	Lemon balm	Essential oil (citral, geraniol), vitamin C, carotene, tannins.	wp	It soothes the nerves, blood, uplifts the spi thoughts.
62.	*Prunella vulgaris* L.	Obična celinšica	Selfheal	Antioxidants, essential oils, pentacyclictriterpenes, tannins, beta-carotene and rutin, vitamins C, K, and B1.	L	It has antiseptic, antib properties; it is used f ointment, or as tea for re
63.	*Origanum vulgare*	Origano	Oregano	Essential oil, flavonoids, tannins, ascorbic acid	L,fl	It is used for respirato infections, and cystitis.
64.	*Urtica dioica* L.	*Kopriva*	Stinging Nettle	Proteins, carbohydrates, fats, Ca, P, Fe, vitamins C, A, B2, and K, carotene.	wp	The root helps with pros with urinary tract, kidn diseases, and hemorrho

						to improve the overall co
65.	*Teucrium montanum* L.	Trava iva	Common Germander	Essential oil, choline, heteroside, tannin, saponin, and bitter substances.	ap	Digestive and respirator of the body, for strengthe stress, diseases of the infections, fungi, and ulc
66.	*Thymus serpyllum* L.	Majčina dušica	Wild Thyme	Essential oil (phenols - thymol, carvacrol), flavonoids, organic acids, tannins, saponins.	ap	Antiseptic for internal or and urogenital organs, n diuretic, as a good disinf skin diseases, and for or
67.	*Marrubium vulgare* L.	Marulja	Horehound	Essential oil, tannin, bitter substances.	ap	It is used for lack of app and disorders of bile sec
68.	*Glechoma hederacea* L.	Dobričica	Ground Ivy	Choline, essential oil, saponins, tannins, resins, acetic acid, and tartaric acid.	ap	It is used primarily fo diseases and respirat diarrhea, hemorrhoids, a used for treating injuries
69.	*Salvia officinalis* L.	*Kadulja*	Sage	Vitamin C and A, niacin, thiamine, riboflavin, Cu, Zn, Mg.	L	It has antiseptic propert and inflamed throat and
70.	*Lycopus europaeus* L.	Vučija noga	Gypsywort	Flavonoids, Phenolic acids, essential oil	wp	It is used for increased t disorders, menstrual dis cough suppression and
71.	*Mentha aquatica* L.	Vodena metvica	Water mint	Menthol, essential oils, vitamin, minerals	L	It is used as a tea
72.	*Mentha pulegium* L.	Mirisna metvica	Pennyroyal	Essential oils, menthol	L	It is used as a tea to cal
				Malvaceae		
73.	*Malva sylvestris* L.	Crni sljez	Mallow	Vitamin C, carotene, Fe, and Ca.	L, fl, rt	Inflammation of the gast throat and esophagus, diseases, eye disease treatment of women's di
				Papaveraceae		
74.	*Chelidonium majus* L.	Rosopas	Greater celandine	Alkaloids, citric acid, glaucine, helidoxanthin, sanguinarine	L, rt	Treatment of warts, clea of the gall bladder, treat treatment of lung diseas
				Pinaceae		
75.	*Abies alba* Mill.	Obična jela	Silver fir	Vitamin C and A, turpentine, essential oil, bornyl acetate, pinene, and limonene.	Nd, rs	In inhalations for res treatment for painful mus
76.	*Pinus sylvestris* L.	Bijeli bor	Scots pine	Essential oil, pinene, vitamin C, bitter substances, resins, proteins, oil, carotene.	Sh, nd, sd, bk,bd	Treatment of the respira cough, mild bronchitis, t rheumatic diseases, and used for cramps caused
				Plantaginaceae		
77.	*Digitalis grandiflora* Mill.	Velecvjetni naprstak	Yellow foxglove	Digitalin	Fl	It is used in the phar medication for heart prob
78.	*Plantago major* L.	Širokolisna bokvica - trputac	Plantain	Glycosides, saponins, and bitter substances, sugar, essential oil, chlorophyll, xylin, vitamins A, C, and K, Fe, Ca, phosphoric acid.	L, rt	Cleanses and stops b stomach, expels mucu wounds. It is used in th organs, skin diseases, diseases, liver disease and bladder diseases, a
79.	*Plantago lanceolata* L.	Uskolisna Bokvica	Buckhorn Plantain	Flavonoids, phenolic acids, organic acids, tannins, phytoncides, mucus, sugar, vitamin C.	Sd, fl, rt	Infections and painful calluses, ulcers, insec diseases, high blood fat inflammatory conditions various bleeding, skin diseases, women's dise and bladder.
80.	*Veronica officinalis* L.	Ljekovita	Speedwell	Glycosides, saponins, bitter	ap	Used for lung proble

		čestoslavica		substances, a small amount of essential oil, organic acids, sugars, wax.		eczema, and other skin
81.	*Veronica chamaedrys* L.	Zmijska čestoslavica	Germander speedwell	Glycosides, bitter substances, a small amount of essential oil.	ap	The leaves are edible ar additive to teas with m than the medicinal comm
82.	*Plantago media* L.	Srednji trputac	Hoar plantain	Glycosides, saponins, essential oils, phosphoric acid, whey enzyme	L, rt	Medicine against cough, pneumonia, facilitates ex diarrhea and bleeding, tr
				Polygonaceae		
83.	*Rumex crispus* L.	Štavelj	Curly dock	Vitamin C and carotene.	ap	Used for treatment again
84.	*Polygonum aviculare* L.	Ptičiji dvornik	Knotweed	Vitamin C, carotene, silicic acids, flavonoids, saponins and anthocyanins	ap	Therapy for tuberculosis
				Polypodiaceae		
85.	*Polypodium vulgare* L.	Slatka paprat	Polypody	Essential oil, tannins, alkaloids, saponins	rt	Sweet fern treats the lun liver diseases, ailments i spleen, hoarseness, cata softens mucus.
				Primulaceae		
86.	*Lysimachia nummularia* L.	Metilj trava	Moneywort	Tannins, ascorbic acid, saponins, arginine.	ap	The young leaves and f also be used as tea for t
87.	*Primula vulgaris* Huds.	Jagorčevina	Primrose	Vitamin C, carotene, and saponin.	Fl, l, rt	Flowers, root, and rhizom prepared as tea, they he
88.	*Primula veris subsp. columnae* (Ten.) Lüdi	Jaglika proljećna	Cowslip	Essential oil, primaverin glycoside, saponin.	Rt, fl	It is used in folk medicin industry; young leaves a as a vitamin-rich vegetal
				Ranunculaceae		
89.	*Ranunculus repens* L.	Puzavi žabnjak	Creeping buttercup	Protoanemonin, vitamin C, saponins, tannins, asparagine	L	Neutralization of microbe Stimulation of the CNS, red blood cells and hem immunity
				Rosaceae		
90..	*Aruncus dioicus* (Walter) Fernald	Šumska kozja brada	Goat's beard	Antioxidants.	Sh, rt	Alleviating postpartum b system issues, treating a gonorrhea, fevers, intern joints, and swollen legs.
91.	*Crataegus monogyna* Jacq.	Bijeli glog	Hawthorn	Flavonoids, oligomericprocyanidins, C-glycosides, triterpenes, and biogenic amines.	L, fl	It is used for digestive is as for poor circulation, a normalize blood pressur
92.	*Filipendula hexapetala* Moench	Končara	Dropwort	Vitamin C and carotene.	L, bl, fl	Young spring leaves ca later only as cooked veg
93.	*Fragaria vesca* L.	Divlja jagoda	Wild strawberry	Tannin, mucilage, organic acids, a lot of vitamin C, sugar, fruit acids.	L, rh, fr	Against diarrhea, purifies function of all organs, calms nerve tension, an minor wounds.
94.	*Malus domestica* Borkh.	Jabuka	Apple	Salicylic acid, pectins, wax, carotenoids.	Fr	In regulating bowe recommended to eat a morning on an empty sto
95.	*Rosa canina* L.	Šipak	Dog rose	Proteins, flavonoids, pectin, essential oil, organic acids (citric and malic), sucrose, Fe, Mg, P, S, K, Ca, Na, beta-carotene, and high vitamin C content.	Fr, fl	For heart pain, for tooth and bladder diseases, bleeding, bleeding fr intestines, for detoxifyin the blood, in cases o scurvy.
96.	*Prunus spinosa* L.	Trnina	Blackthorn	Tannins, organic acids, vitamin C.	Fl, fr, bk from the rt	Tea made from the purifies the blood, relax purgative, which is why

						for constipation.
97.	*Sorbus aucuparia* L.	Jarebika	Rowan	Organic acids, vitamin C, and carotene.	Fr	The fruits are edible and the first frost.
98.	*Rubus idaeus* L.	Malina	Red raspberry	Tannins, vitamins C and B, carotene, essential oil, flavonoids, coumarins, pectins.	L, fr	Women's diseases, es fallopian tubes and infe dysentery, stops and pu diseases and elimina intestinal inflammation.
99.	*Rubus fruticosus* L.	Kupina	Blackberry	Sugar, pectins, tannins, organic acids, carotene, vitamin C, B vitamins, potassium salts.	Rt, l, sh,fl, fr	Due to the astringent tar treatment of diarrhea ar they have a milder effec preparations (e.g., waln suitable for use in child and are beneficial in cas
100.	*Crataegus oxyacantha* L.	Crveni glog	Hawthorn	Flavonoids, oligomericprocyanidins, C-glycosides, triterpenes, and biogenic amines.	L, fl	It is used for digestive i as for poor circulatio normalize blood pressur
101.	*Filipendula ulmaria* (L.) Maxim.	Prava končara	Meadowsweet	Vitamin C and carotene.	L, fl	Young spring leaves ca later only as cooked veg
			Rubiaceae			
102.	*Asperula odorata* L.	Mirisna lazarkinja	sweet woodruff	Essential oil, tannins, alkaloids.	ap	It regulates liver functio calms migraines, and is on wounds.
103.	*Galium verum* L.	Ivanjsko cvijeće	Yellow bedstraw	Flavonoids, glycosides, essential oils, organic acids.	ap	Tumors, epilepsy, hyste excretion, inflammation respiratory organs.
			Santalaceae			
104.	*Viscum album* L.	Bijela imela	Mistletoe	Lectin, polypeptides, flavonoids, lignin, biogenic amides.	Wp	It is used to lower blood circulation, alleviate me dizziness.
			Scrophulariaceae			
105.	*Linaria vulgaris* Mill.	Lanilist	Toadflax	Tannin, yellow coloring matter, linarin, mucilage, proteins, sugar, salts.	Ap	Stomach ailments and compresses for hemorrh wounds, ulcers, and rash
			Saliaceae			
106.	*Salix alba* L.	Bijela vrba	White willow	salicylic acid	Bk	Natural aspirin, used for temperature, acts as an toothaches, muscle pain
			Tiliacee			
107.	*Tilia chordata* Mill.	Lipa	Small Leaved Lime	Fe, Ca, Mn, flavonoids, quercitin, rutin, astragalin	Fl	Causes sweating, stimul recommended for colds effect, treats anemia
			Violaceae			
108.	*Viola tricolor* L.	Dan i noć	Wild pansy	Flavonoids, essential oil, saponins, vitamin C, carotenoids, coumarins, mucilage, tannins, mineral substances.	ap	It is used externally conditions, especially in
109.	*Viola odorata* L.	Mirisna ljubica	Sweet Violet	Alkaloids, gum, mucilage, and saponins.	Fl,rh	It treats the respiratory and helps with kidney issues.

*ap – aerial parts, bd - buds, bk – bark, bl - bulbs, fl – flowers, fr – fruits, l – leaves, sd - seeds, rs - resin, rt – roots, wh- whole plant, rh- rhizome, sh- shoots, nd- needle, st-stem, pt-petiole

During this research, 109 medicinal plant species were identified, with a record of endangered and endemic species. The plants were classified into families, totaling 41 families, with the most represented being the Rosaceae and Lamiaceae families.

The root of Gentianalutea (yellow gentian) is ruthlessly harvested from Mount Konjuh, leading to its near extinction in areas known to be its habitat. *Gentianalutea* is characteristic of growing at higher altitudes, on southern exposures, and in sparse pine forests. During the study, locations were visited where the presence of *Gentianalute*a was expected; however, only a small number of individuals were observed. Upon returning to lower areas of Mount Konjuh with southern exposure, a large number of individuals of this species were surprisingly noted. This led to the conclusion that extensive exploitation has reduced the presence of *Gentianaluteaa*t higher altitudes due to human activity, while it was found that at lower altitudes, where the presence of this species was not expected, the number of individuals had significantly increased, as there is no exploitation in those localities.

Teucriummontanum (mountain germander) was found at only one location near the MuškeVode hotel. This site is characterized by a significant amount of rocky substrate. An interesting fact is that at this location, mountain germander constituted about 60% of the vegetation, and it was largely accompanied by *Thymus serpyllum* (creeping thyme).

This information can be associated with the fact that in this area, wild medicinal herbs are harvested and sold. Therefore, it is essential to educate the local population about the importance of harvesting methods and the endangerment of certain plant species.

Common holly (*Ilex aquifolium)* belongs to the group of endangered and vulnerable plants. The number of specimens observed in the field was very small but significant, as it confirmed the presence of holly (*Ilex aquifolium)* on Mount Konjuh.

The presence of High cowslip (*Primulaveris subsp. columnae*) was also recorded, which falls into the category of endangered and vulnerable species.

The dominance of the Rosaceae and Lamiaceae families in the systematic spectrum of the investigated species indicates more arid habitats, and the influence of a warm climate with similar proportions of systematic affiliation has also been established in some other areas of Bosnia and Herzegovina (Leporatti ML., Ivancheva S. (2003), Bonet MA; Valles J. (2003), Leporatti ML., Ivancheva S. (2003).

3.3 Poll

During the preparation of this paper, 50 individuals of different ages from the Mount Konjuh area were surveyed, representing three municipalities (Kladanj, Živinice, and Banovići).

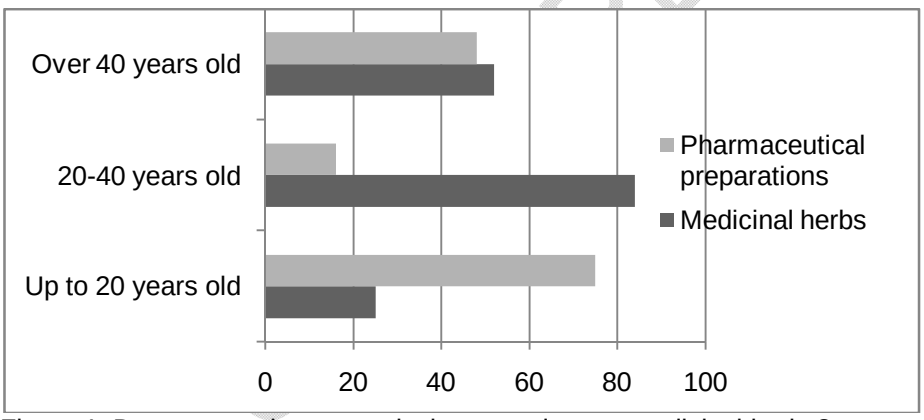

Figure 1. Do you use pharmaceutical preparations or medicinal herbs?

Based on the survey, we can determine that younger individuals (up to 20 years old) tend to use pharmaceutical preparations more in protecting their health, with 75% of respondents indicating this. In contrast, individuals of middle age (20-40 years old) are more likely to use medicinal herbs, with 84% of respondents reporting this. Among older respondents (over 40 years old), the use of medicinal herbs and pharmaceutical preparations is almost equal, with 52% of respondents using medicinal herbs and 48% using pharmaceutical preparations.

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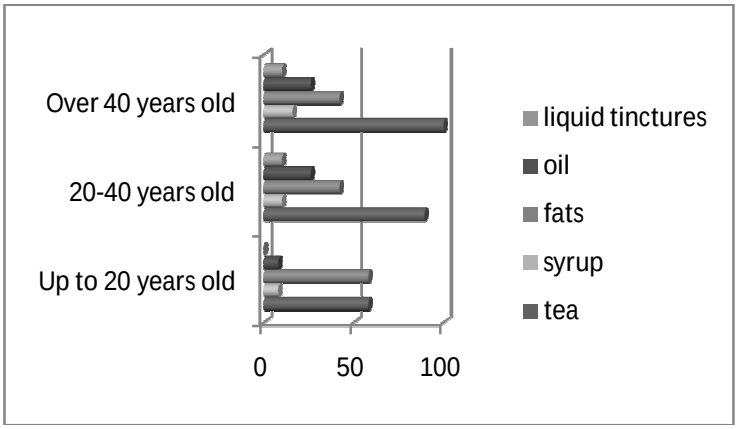

Figure 2. How do you use medicinal herbs?

Based on the method of using medicinal herbs, it is evident that the dominant form is the use of herbs in the form of teas, with a notable 100% of respondents over 40 years old using teas. The next most common method is the use of ointments, which are used by over 40% of all respondents. The least common method of use is in the form of tinctures, with the particular observation that no respondents under 20 years old reported using liquid tinctures.

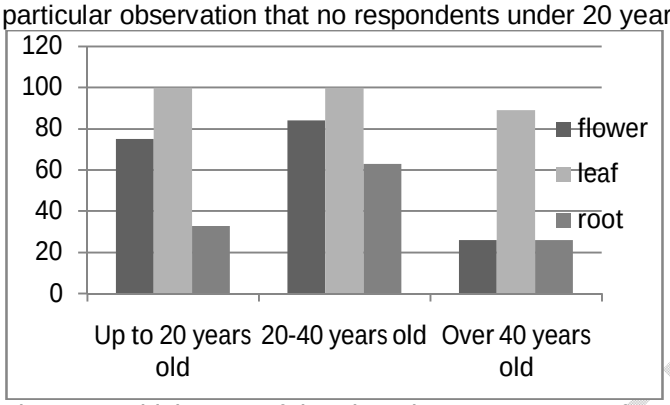

Figure 3. Which parts of the plant do you use most often?

The part of the plant most commonly used for medicinal purposes among all respondents is the leaf, where 100% of respondents aged 20 and under, as well as those aged 20-40, use leaves for medicinal herbs. This high percentage was determined through further investigation to be largely due to the extensive use of wild-collected mint. The flowers of plants are also widely used for medicinal purposes, especially among individuals aged 20 and under and those aged 20-40. However, among respondents over 40 years old, the percentage of flower use for medicinal purposes is somewhat lower, at 25% of respondents. The root is used the least for medicinal purposes, with significant use (63% of respondents) only among those aged 20-40.

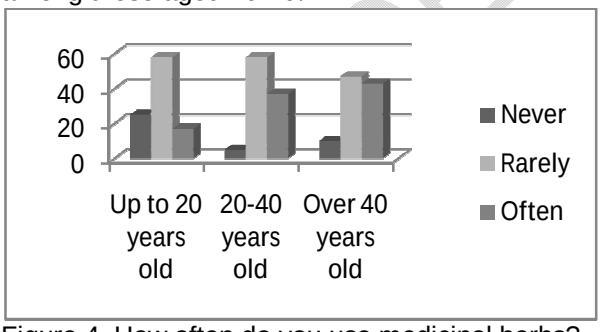

Figure 4. How often do you use medicinal herbs?

The majority of respondents from all age groups use medicinal herbs very rarely, accounting for about 50% of respondents. It is notable that individuals under 20 years old represent the highest percentage of those who never use medicinal herbs, with 25% of respondents, while this age group also has the lowest percentage of respondents who often use medicinal herbs, which is to be expected. The most frequent users of medicinal herbs are individuals over 40 years old, making up 43% of respondents.

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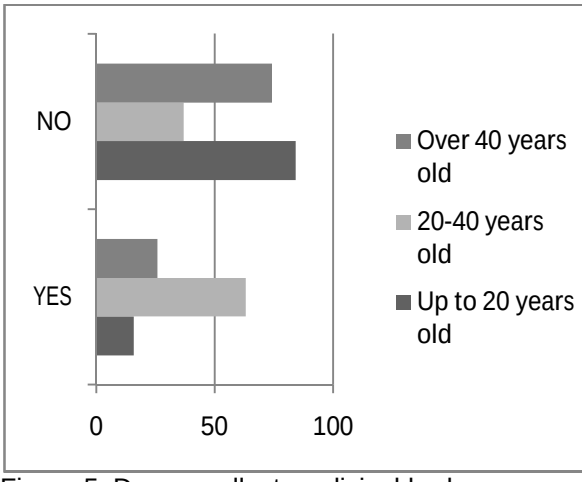

Figure 5. Do you collect medicinal herbs

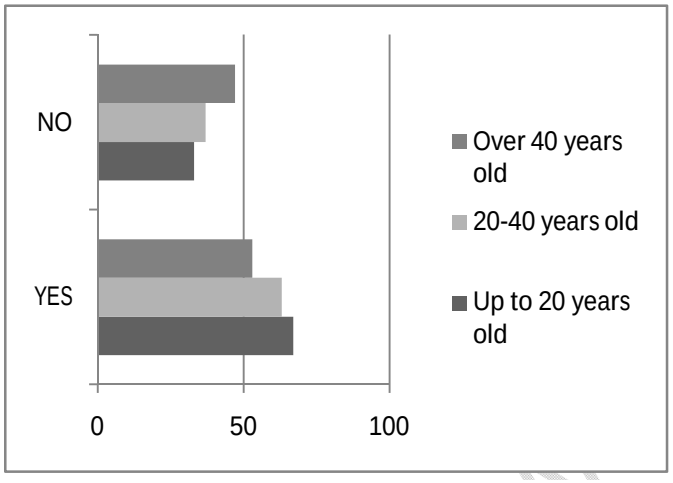

Figure 6. Do you often use medicinal herbs in the form of teas purchased from stores?

According to figures 5 and 6, we conclude that individuals under 20 years old are the least likely to recognize medicinal herbs in nature, and therefore they most often use teas purchased from stores. The highest percentage of recognition of medicinal herbs in nature is among respondents aged 20 to 40, with 63% of respondents.

4. CONCLUSION

In order to conduct the research for this paper, a survey was carried out involving 50 respondents from the local population of Mount Konjuh. The results of the survey indicate that alternative medicine occupies a significant place in treatment methods; however, there is also a noticeable decline in knowledge about the use of medicinal herbs in Bosnia and Herzegovina, particularly among the younger population, which relies solely on the use of tea. There is a small number of practitioners of traditional healing methods, and the local population does not engage in this directly. Globalization has led to the frequent use of widely known non-native medicinal plants. These plants are increasingly cultivated for personal use or resale. On the other hand, significant indigenous sources of plant resources and methods of application have been forgotten.

The older segment of the population, respondents over 40 years old, uses medicinal herbs more frequently and in various forms, showing themselves to be the best knowledgeable about medicinal plants.

However, it is a disappointing fact that people living in the area of Mount Konjuh utilize the benefits of this mountain very little. In many cases, it is outsiders who benefit from the exploitation of the forest, medicinal herbs, mushrooms, etc.

The area of Mount Konjuh is characterized by a large number of medicinal plant species, so it is necessary to work towards sustainable development. The process of sustainable development for this area should be directed towards an ecologically acceptable method of resource management. Essentially, this means that medicinal herbs can be used to a degree that does not jeopardize the balance of the ecosystem.

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Disclaimer (Artificial intelligence)

Option 1:

Author(s) hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc.) and text-to-image generators have been used during the writing or editing of this manuscript.

Consent: All participants provided consent to participate in the research

REFERENCES

1.

2. Avci G, Kupeli E, Eryavuz A, Yesilada E, Kucukkurt I (2006). Antihypercholesterolemic and antioxidant activity assessment of some plants used as remedies in Turkish folk medicine. J.
3. Bonet MA; Valles J (2003): Pharmaceutical ethnobotany in the Montseny biosphere reserve (Catalonia, Iberian Peninsula). General results and new or rarely reported medicinal plants. J Pharm Pharmacol 55:259-270.
4. Braun-Blanquet, J. (1964): Plant Sociology. Fundamentals of Vegetation Science, Springer Verlag, 865 p., Vienna-New York.
5. De Fao V, Senatore F (1993): Medicinal plants and phytotherapy in the Amalfitan Coast, Campania, Southern Italy. J Ethnopharmacol 39:39-51.
6. Domac, R. (1994): Flora of Croatia: a manual for plant identification. Školskaknjiga, Zagreb.
7. Environmental Fund of the Federation of Bosnia and Herzegovina, 2018-2022. List of Endemic Taxa of South-East Europe. http://e-prirodafbih.ba/en/endemics/check list_SEE/. (Accessed 24 August 2022)
8. FAO Regional Office for Europe and Central Asia, 2015. The Forest Sector in Bosnia and Herzegovina, Preparation of IPARD Forest and Fisheries Sector Reviews in Bosnia and Herzegovina. Budapest, Hungary.
9. Federal Ministry of Environment and Tourism, 2009. Overview and State of Biological and Landscapes Diversity in BiH. Sarajevo.
10. Grimmett, R., Mrak, M., Orueta, J., Perry, E., Valderr´abano, M., Valdez, C., Wood, P., 2017. In: BirdLife International (Ed.), Mediterranean Basin Biodiversity Hotspot.
11. Grlić, LJ. (1990). Encyclopedia of wild edible plants.
12. Gursky Z. The golden book of medicinal herbs. Zagreb, Matica hrvatska Publishing House, 1999;518-519.
13. Huseinovic, S., Bektic, S., Kovačević, M., Salkić, B. (2021): Analysis of Vegetative and Generative Characters of Fragaria vesca L. (Rosaceae) Populations. Journal of Applied Life Sciences International. 24 (10): 9-19. ISSN: 2394-1103.
14. Huseinović S, Bektić S, Čivić S. (2017): Inventory and use of medicinal herbs in traditional phytotherapy. XXII Biotechnology Conference. Proceedings, Čačak. 661-666. ISBN 978-86-87611-35-1, COBISS.SR-ID 213667852.
15. Huseinović, S., Ahmetović, E., Bektić, S., Selimović, S., Memić, S. (2023): The Healing Flora of Konjuh Mountain in Bosnia and Herzegovina. Journal of Applied Life Sciences International, 26 (6): 1-10. ISSN: 2394-1103.
16. IUCN (1996). Endangered Species Resources. (Available online (http://www.usd320.k12.ks.us/whs/lmc/endangeredspecies.html; Accessed 28 December 2006).
17. Ivancheva S, Stantcheva B (2000). Ethnobotanical inventory of medicinal plants in Bulgaria. J. Ethnopharmacol. 69: 195-172.
18. Jaric, S., Mačukanović-Jocić, M., Djurdjević, L., Mitrović, M., Kostić, O., Karadžić, B., Pavlović, P., 2015. An ethnobotanical survey of traditionally used plants on Suva Planina mountain (south-eastern Serbia). J. Ethnopharmacol. 175, 93–108.
19. K. Šavikin *et al.* (2013) Ethnobotanical study on traditional use of medicinal plants in South Western Serbia, Zlatibor district J. Ethnopharmacol
20. Leporatti ML., Ivancheva S. (2003): Preliminary comparative analysis of medicinal plants used in the traditional medicine of Bulgaria and Italy. J Ethnopharmacol 87:123-142.
21. Nikolić T. Herbal manual. Školska knjiga, Zagreb; 1996.
22. Ranđelović, V., Matejić, J., Mitić, Z. (2012): Practical work in the systematics and ecology of medicinal plants. Faculty of Natural Sciences and Mathematics, University of Niš.
23. Redžić, S. (2007). The ecological aspect of ethnobotany and ethnopharmacology of the population in Bosnia and Herzegovina. Collegium Antropologicum, 31(3), 869-890.
24. S. Kayani *et al.* (2014) Ethnobotanical uses of medicinal plants for respiratory disorders among the inhabitants of Gallies – abbottabad, Northern Pakistan J. Ethnopharmacol.
25. Sarić, M. (ed.) (1989): Medicinal Plants of the Socialist Republic of Serbia. Serbian Academy of Sciences and Arts, Belgrade.
26. Schafner W., Hafelfinger B., Ernst B. (1999): Compendium of medicinal herbs. Bern.
27. Softić, M., 2015. Zenicko-Dobojski Kanton U Brojkama (Sarajevo). UDK 311.314 (497,6).
28. Šarić-Kundalić, B., Dobeš, C., Klatte-Asselmeyer, V., & Saukel, J. (2010). Ethnobotanical study on the medicinal use of wild and cultivated plants in central, southern, and western Bosnia and Herzegovina. Journal of Ethnopharmacology, 131(1), 33-55.

UNDER PEER REVIEW

29. Šarić-Kundalić, B., Dobeš, C., Klatte-Asselmeyer, V., Saukel, J., 2011. Ethnobotanical survey of traditionally used plants in human therapy of east, north and north-east Bosnia and Herzegovina. J. Ethnopharmacol. 133, 1051–1076
30. Šilić Č. Yearbook of the Biological Institute in Sarajevo XV, Sarajevo. 1984;1966:17.
31. Weber HE, Moravec J, Theurillat JP. International Code of Phytosociological Nomenclature. Journal of Vegetation Science. Opulus Press, Uppsala. 2000;11(5):739–768.
32. Zlatković BK, Bogosavljević SS, Radivojević AR, Pavlović MA, 2014. Traditional use of the native medicinal plant resource of Mt. Rtanj (Eastern Serbia): ethnobotanical evaluation and comparison. Journal of Ethnopharmacology 151:704-713

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