Research Article

International Journal of Indigenous Herbs and Drugs
Content Available at www.saap.org.in ISSN: 2456-7345

Perspectives of the rural communities of *Impendle, Bulwer, and Kokstad* in South Africa using ethnomedicinal plants to cure flu and associated symptoms in the advent of COVID-19

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Article Info :

Article History
Received on: 03-04-2022
Revised on: 13-04-2022
Accepted on: 30-05-2022

Abstract

The contribution of ethnomedical research in the advent of infectious illness is not new. Ethnomedicinal plants have historically embodiment of wisdom from the ancestors and play a significant role in treating various human disorders. This study embodies qualitative research methods as well as the Social Constructivist Theory to understand how the rural communities (Impendle, Bulwer and Kokstad), located within the geographical landscape of South Africa use ethnomedicinal plants to cure flu and other associated symptoms in the advent of COVID-19. Through telephonic interviews, twenty (20) research participants were recruited using the snowballing-chain referral sampling technique. Research participants contributed by noting that rural communities/cultures have a rich knowledge of ethnomedicinal plants that they have used for decades to treat flu symptoms and even cure people suffering from flu. This paper strongly recognises that people's voices in rural communities are important in understanding their illness or disease experience and how they ethnomedical respond to them. Data analysis revealed African activism towards the COVID-19 impact on rural communities. This paper thus recognises indigenous knowledge as ancestral learning, as the source of social, domestic wisdom as well as a guide on the use of ethnomedicinal plants/ethnomedicine. Ethnomedicinal plants remain the wealth of rural communities as they are able to demonstrate their agency and resilience when confronted by different illnesses. This is their contribution to the decolonial agenda which seeks to recognize the wealth of ethnomedical plants against the hegemonic pragmatism of biomedicine. This paper then proposes that discussed ethnomedicinal plants should be acknowledged in South Africa as well as in Southern Africa as their indigenous wealth and should be vetted as traditional remedies that people have used to cure flu and associated symptoms. This recognition will thus achieve decolonial thinking of African indigenous/ethnomedicinal plants.

Keywords: ethnomedicine/medicinal plants, flu, and rural communities

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DOI: https://doi.org/10.46956/ijihd.v7i3.312

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Introduction and Background to the Study

This study targeted the rural communities of Impendle, Bulwer and Kokstad located in the Province of KwaZulu-Natal, South Africa who relied on ethnomedicine and ethnomedicinal plants to cure flu

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and associated symptoms in the advent of COVID-19. Ethnomedicine means that illness is culturally defined, diagnosed and treated. It refers to the use of traditional care methods which are based on indigenous cultural beliefs and practices and are not derived from the conceptual framework of modern medicine [5]. In 1977 the World Health Organization (WHO) held a consultative meeting on the Promotion and Development of Traditional Medicine [37]. It noted that despite the great advances of modern scientific medicine in the fight against disease, a considerable number of the world's inhabitants, especially in the developing world are still without proper medical care. Proceedings of the meeting pointed out that the accumulated knowledge of tradition should not be ignored in the endeavour to bring health care to all people. There was an immediate call to recognise traditional systems of medicine [37]. The WHO report expounded that ethnomedicinal plants should be integrated into a disciplined and pragmatic fashion that would forge a potent instrument in the battle against suffering and disease. Traditional medicine (indigenous medicine or ethnomedicine) was then recognised as a practice, to some degree, in all cultures. It is for this accentuation that people from rural communities have thus relied on traditional remedies in an attempt to cure illnesses and diseases. Several ethnomedical plants were cleared and listed for domestic usage and they include digitalis, quinine, atropine, scopolamine, reserpine, and morphine. They were recognised and categorised as derivatives of 'drug plants'/ indigenous remedies and were known to be efficacious in the treatment of certain diseases long before chemists isolated their effective ingredients [6, 26, 37]. Rural communities relied on these medical/traditional plants for many reasons [10, 25, 37]. Ethnomedicine research was cleared as a way of collecting both qualitative and quantitative data which recognised both the emic and etic perspectives of the efficacy of traditional remedies and the need to adopt a holistic approach [20]. Our position in the study is that COVID-19 in South Africa and the world presented unprecedented times, it did not only threaten the economy but also threatened the life expectancy of people. We observed that people in rural communities presented flu symptoms but relied on ethnomedical plants to cure them. Some pharmaceutical remedies such as Vitamin C and Zinc went out of stock and most people were seen resorting to ethnomedicinal plants as indigenous remedies to respond to flu and any other associated symptoms.

Ethnomedicine or the use of Medicinal Plants in Africa

This study employed the social constructionist theory to understand the use of ethnomedicinal plants to cure flu and associated symptoms in the advent of COVID-19. The social constructionist theory recognises that traditional societies/cultures are conversant with ethnomedicinal plants which they have historically used to respond to illnesses, diseases and associated symptoms. The social construction theory embraces a cultural constructivist approach, which recognises that local experiences and perceptions in specific contexts are what shape reality and produce ethnomedical systems and knowledge [12]. This theoretical lens positions cultures at the centre or the hub of knowledge. The theory also allows the 'researched' to draw largely from their emic perspective, socialisation, as well as reflexivity. The data solicited through the social constructionist theory allows indigenous knowledge to appear as a measure of the validity and credibility of knowledge. Researchers can detect indigenous knowledge which embraces the use of ethnomedicine as a cultural immediate health solution inmost rural or traditional society. Through the social constructionist theory, anthropologists assert that behind any form of illness or disease that becomes a human experience, there is an explanatory model which informs how people, have been socialised or enculturated themselves in cultural patterns that make sense to them. Cultures determine cognitive schema and interpretation of symbols of relevance and importance within that culture. Researchers benefited from the conversation that takes place when qualitative research questions are posed and take joy in the explanatory model that comes from the perspective of the subject". This theory confirmed that societies/communities/societies have been socialised into their use and the indigenous knowledge underpinning their use of ethnomedicinal plants to cure flu and associated symptoms [4].

Research on plants and the use of traditional medicinal information has again received considerable interest. Nonetheless, what we observed in the existing literature is a dearth of a comprehensive and updated compilation of promising medicinal plants from the African continent especially in rural areas where data for this study was collected. The African continent is endowed with an enormous wealth of plant resources. It is considered to be the cradle of mankind with a rich biological and cultural diversity marked by regional

differences in healing practices. Traditional systems of medicine in most Southern African countries have been the only option available for health care before the introduction of modern methods for prevention, diagnosis, and treatment of social, mental, and physical illness amongst people in rural communities. The scientific literature has witnessed a growing number of publications geared toward evaluating the efficacy of medicinal plants from Africa which are believed to have an important contribution to the maintenance of health and in the introduction of new treatments [15, 31].

Medical anthropology has also attempted to evidence the cultural and technical rationality of so-called traditional medicines to underscore their explanatory and applicative abilities while seeking to rehabilitate, not only traditional 'medical' knowledge, but also the culture of indigenous peoples themselves. Anthropologists observe different cultures and their perspectives on disease and illness by looking at the biological and ecological aspects of the disease, the cultural perspectives, and how cultures approach prevention and treatment. Medical anthropology is concerned with both the causes and consequences of human sickness as well as healing interventions that societies try respectively. Ethnomedicine examines and translates health-related knowledge and theories that people inherit and learn by living in a culture. Each society has a particular medical culture or 'ethnomedicine', which forms the culture's medical common sense, or logic [1, 27, 29, 36].

Societies or cultures are capable of generating knowledge that defines how they perform rituals and how they respond to their societal experience of illnesses and diseases. When researchers take an interest in samples and ethnographically study cultures, they intend to collect emic perspectives [20]. An emic perspective of cultures is ultimately a perspective focused on the intrinsic cultural distinctions that are meaningful to the members of a given society, often considered to be an insider's perspective. Studies done from an emic perspective often include more detailed and culturally rich information than studies done from an etic point of view because they recognize cultural knowledge also known as indigenous knowledge [18, 21, 22]. The emic perspective serves the purpose of providing descriptive in-depth reports about how insiders from a culture understand their rituals. Emic perspective is an explanation of events from the individual's point of view [9]. Ethnomedical remedies or the use of traditional plants are defined as the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, used in the maintenance of health, and the prevention, diagnosis, improvement or treatment of physical and mental illness [37].

Ethnomedicine means that illness is culturally defined, diagnosed, and treated. It refers to the use of traditional care methods which are based on indigenous cultural beliefs and practices and are not derived from the conceptual framework of modern medicine. It is mostly employed by rural communities because they are far away from the reach of modern medicines and doctors; hence, they rely on traditional medicinal systems [5]. Ethnomedicine as the study of the cultural concepts of health, disease, and illness, and of the nature of the local healing systems. The documentation of medicinal uses of African plants and traditional systems is becoming a pressing need because of the rapid loss of the natural habitats of some of these plants due to anthropogenic activities and also due to an erosion of valuable traditional knowledge [27].

Medicinal plants are an integral part of the African healthcare system since time immemorial. Interest in traditional medicine can be explained by the fact that it is a fundamental part of the culture of the people who use it and also due to the economic challenge: on one side, pharmaceutical drugs are not accessible to the poor and on the other side, the richness and diversity of the fauna and flora of Africa are an inexhaustible source of therapies for a panoply of ailments [17]. The World Health Organisation estimates that, at present, more than 80 per cent of the world's population relies on traditional healing modalities and herbals for primary health care and wellness. The extensive use of traditional medicine in Africa is composed mainly of medicinal plants and has been argued to be linked to cultural and economic reasons. This is why the WHO encourages African members to promote and integrate traditional medical practices into their health system [37].

Plants typically contain mixtures of different phytochemicals, also known as secondary metabolites, that may act individually, additively, or in synergy to improve health. Southern Africa has countries which have the richest plant diversity in the world and a high percentage of these species have been implicated in the traditional medicine of the region for several centuries [16]. The use of herbal medicine remains an integral part of the culture of the people. South Africa has an estimated 80 per cent of cultures of people who use

herbal remedies for their physical and physiological health care at different stages of their life [14].

The use of medicinal plants has contributed to an immense knowledge in native medicine. South Africa is home to about, 30,000 plant species and over 3,000 of these are used in traditional medicine in the country [16]. Medicinal plants have played a major role in the traditions and lives of many people all over the world and from all walks of life. Plants have the miraculous treasure of numerous compounds with the ability to cure diseases and make our immunity strong. Medicinal plants for traditional use are based on their wisdom, faith, availability, and positive results in generations of curing ailments or diseases. Medicinal plants and plant-derived medicines are used globally to treat various ailments [30]. Natural and herbal medicines have shown their potential over synthetic drugs by mostly having fewer side effects and lower levels of toxicity. Not only do plants serve as potentially great alternatives to synthetic drugs and therapies, but natural plant-based therapies have also become increasingly popular, setting the benchmark for a more natural and safer platform. Traditional medicine, on the African continent, dates back 4,000 years. It was once the sole medicinal system; however, even in recent times for some, it remains the dominant system with an estimated 80 percent of the African member states' population using traditional medicine as a primary source of health care. Africans have used traditional medicine for hundreds of years as a form of health care [6, 7, 8]. In South Africa, it is estimated that there are 27 million individuals who use traditional medicine. It has been calculated that of these individuals who use traditional medicine, they use it approximately 4.8 times per year, which equates to an average of about 157g of plant material for each treatment and 750g per year. In South Africa, indigenous plants are mainly used, and this equates to 20,000 tons being used each year from at least 771 plant species that have been recorded. Ethnic groups/traditional/tribes or rural communities, as well as ethnomedicinal plant/medicinal users, use them as bark, roots, bulb, whole plant, leaves, and stems. This is dependent on the social construct attached to the contribution of the segment of the plant. African traditional medicine is a form of holistic health care organized into three levels of specialty, namely divination, spiritualism, and herbalism. Formal recognition and integration of traditional medicine into conventional medicine will hold much promise for the future [10].

The use of plants for health purposes started a long time ago, probably at the first moment when a human being got sick. Some 3,000 years BC, humankind was well aware of the medicinal properties of some plants growing around them and these plants have proved to be safe in Africa. Ethnopharmacological research provides the rationale for the selection and scientific investigation of medicinal plants since indigenous remedies have successfully been used by a significant number of people over extended periods [4]. This study was conducted to deconstruct what rural communities use to cure the flu and associated symptoms in the onset of COVID-19. There is a link between someone's ethnomedical conceptions of the nature and cause of an illness and what he or she does to prevent that illness or to right the body [28]. Traditional medicines are used throughout the world as they are heavily dependent on locally available plant species and plant-based products and capitalize on traditional wisdom-repository of knowledge [25]. Medicinal plants have been used for the treatment of both infectious and non-infectious diseases by the majority of the world's population for many years because many rural communities in Africa continue to have limited access to Western medical health care hence they rely on ethnomedicine/traditional medicine. Ethnomedicine/traditional medicine has become their rich cultural heritage to date [6, 37].

The use of Ethnomedicinal Plants/Traditional Medicines during COVID-19

The relevance of ethnomedicine studies has never been as important as it is nowadays [7]. Such studies are gaining scholarship recognition in most countries as they qualitatively and quantitatively identify endangered medicinal plant species to take appropriate conservation measures shortly. Ethnobotany and ethnomedical studies are today recognized as the most effective method of identifying new medicinal plants or refocusing on those plants reported in earlier studies for the possible extraction of beneficial bioactive compounds [3]. The significance of the continuation of studies like this is ethnobotanical studies encourage the continuous search for natural products for use as medicines [30]. Documentation of traditional knowledge is the surest means of preservation; it ensures the preservation of the delicate knowledge and ensures wider dissemination [6, 19]. The focus of the study was on COVID-19 but the authors were keen on discussing the use of ethnomedicinal/medical plants/ traditional medicines during COVID-19 which threatened the

socio-economic strength of many families and households. Through numerous trials and errors followed by extensive empirical exercises, indigenous people around the world have independently discovered a plethora of medicinal plants for treating various infectious diseases. In central Africa, Ageratum conyzoides (billygoat weed) was used to clear parasitic worm infections [35]. The severe acute respiratory syndrome-related Coronavirus 1 or novel coronavirus (COVID-19) infection has been declared a world pandemic resulting in thousands of deaths in 216 countries around the world.

Ethnomedicinal plants have a lot to offer in treating COVID-19 and another infectious diseases. Herbal traditional medicines have been used in China since the first days of the COVID-19 outbreak. Indeed, these traditional medicines were shown to result in the recovery of 90 percent of the 214 patients treated. Furthermore, some traditional herbal medicines prevented SARS-CoV-2 infection in healthy persons and improved the health state of patients with mild or severe symptoms [2]. Medicinal plants can act as potential healing agents that can help people to fight against this infection by boosting their immune system or by posing viricidal effect [32]. Chinese traditional medicines known as Shu Feng Jie Du and Lianhuaqingwen have been recommended due to their demonstrated efficacy against previous influenza A (H1N1) or SARS-CoV-1. A group of experts from the Zhongnan Hospital of Wuhan University included the use of traditional medicines in the guidelines for the treatment and prevention of COVID-19. The use of different herbal mixtures according to the disease stage. Inhibitory effects and anti-inflammatory potential of a Chinese herbal mixture called Lianhuaqingwen (a mixture of 11 medicinal species, a mineral medicine called gypsum and menthol) were used to cure SARS-CoV-2. Traditionally, Lianhuaqingwen (ethnomedicinal plants) has been widely used to treat fever, cough, fatigue, influenza, bronchitis, pneumonia,and the early stage of measles, and has been included in phase II clinical trials in the USA [2]. Medicinal plants such garlic (*Allium sativum*), Margosa neem (*Azadirachta indica*), Tulsi (*Ocimum sanc*tum), Giloy (*TinosporaCordifolia*), clove (*Syzygium aromaticum*), ginseng (*Panaxquinquefolius L.),* Betel vine (*Piper betel*), Black paper (*Pipernigrum*), Black cumin (*Black cumin L.*), Ashwagandha (*Withaniasomnifera*), Licorice astragalus (*Astragalus glycyphyllos*), turmeric (*Curcuma domestica*), elderberry (*Sambucus nigra*), Giloy (*TinosporaCordifolia*) have been internationally used to cure quite a number of sicknesses on people. These plants are known to be rich in antioxidants, vitamins, proteins, carbohydrates, dietary fibers, amino acids, minerals, steroids, alkaloids, antivirals, and antibacterial phytochemicals which help in rejuvenating the immune system and also help in killing the invaded viruses [32]. Medicinal plants and natural products have played a significant role in curing and preventing a variety of ailments occurring in humans and animals and continue to provide new bioactive leads for researchers in therapeutic discovery [28]. The use of medicinal plants has been historically used to treat infections and viruses like common colds, influenza, fever, and herpes due to the enhancement of the immune system of the human body as the active ingredients of these plants have significant therapeutic effects. Phytochemicals of medicinal plants have direct or indirect therapeutic effects to prevent and treat various infectious and non-infectious diseases. Medicinal plants are the natural parts, which are used at least or without processing, for curing diseases at different regional scales [13].

Methodology, sampling, and demographics of participants

This study employed a qualitative research method design and was cleared by the University of KwaZulu-Natal HSSREC and the study approval reference was 0001351/2020. A structured-telephonic interview schedule with open-ended questions was administered to twenty (20) participants between the ages of 18 to 61 years who were sampled through the snowball-chain referral sampling technique. The reason for adopting structured-telephonic interviews was due to the COVID-19 pandemic regulations. The lockdown and safety protocols inhibited an ethnographic approach to data collection. Researchers could not travel or have closer contact with participants (i.e. face-to-face interviews). Structured interviews provide a way of generating data about the social world by asking people to talk about their lives and experiences [8]. This sample remains valid because research participants were recruited from rural communities that still make rely on ethnomedical plants when curing flu and associated symptoms. Snowball-chain referral sampling is a method of gathering information from specific groups of people [24]. Rural and indigenous/ethnic communities/cultures worldwide are knowledgeable about the local plants on which they are immediately dependent [22]. Researchers ensured that ethical consideration in social

research was adhered to. Anthropologists have used interviews to collect data that are inclusive of people's opinions, thoughts, experiences and feelings; hence, interviews were deemed relevant for the study. Modes of modern communication such as telephones and the internet have enabled data collection through interviews to happen even when parties are separated geographically [11]. During the telephonic interviews, researchers took the responsibility of writing down all the responses that were narrated by participants and later generated themes.

Findings and Discussion

The use of Ethnomedical plants to cure flu and associated symptoms was a broader theme that was simplified by sub-themes presented below. The listing of ethnomedicinal plants was the core of this study hence the following data is presented in a manner that is easy to understand and from the views of those that were sampled for data collection. Herbal medicine is a part and parcel of and is sometimes synonymous with African traditional medicine [27, 37]. It is the oldest and still the most widely used system of medicine in the world today. It is used in all societies and is common in all cultures [1, 37]. Herbal medicines, also called botanical medicines, vegetable medicines, or phytomedicines, refers to herbs, herbal materials, herbal preparations, and finished herbal products that contain whole plants, parts of plants, or other plant materials, including leaf's, bark, berries, flowers, and roots, and/or their extracts as active ingredients intended for human therapeutic use or for other benefits in humans [37]. Human beings experience the world through a web of meanings that include rituals, symbols, and healing processes to cure illnesses and diseases [9, 33] hence plants with medicinal value and compounds of traditional medicine receive continuous attention from researchers.

Table 1: Sub-theme 1: Listing of ethnomedical plants and the prevalence of usage from sampled rural communities

Listing of ethnomedical plants	***The prevalence of usage from sampled rural communities***		
	Impendle	Bulwer	Kokstad
Raw garlic and raw honey from the bees	•	•	•
Umhlonyane *"Artemisia afra"*	•	•	•
Ihlaba, inhlabane, inkalane *"Aloe" also known as Asphodelaceae*	•	•	•
Isivimbampunzi "Alliaceae"	•	•	•
Umqwili *Alepidea amatymbica*	•	•	•
Ikhathazo *Alepidea amatymbica*	•	•	•
Ikhambi lombila *Amaranthaceae*	•	•	•
Uwatela *Black wattle*	•	•	•

Research participants did not know these ethnomedical plants by other bio-medical terms because they grew up knowing these ethnomedical plants as listed. Participants confirmed that other communities members also know them as they have listed. And they have never tried to find an English translation of their names. Researchers were not surprised that research participants from three rural communities used similar medical plants because they are not geographically far from each other.

- ***Sub-theme 2: Knowledge socialization (the source of the usage knowledge they possess on medical plants)***

Research findings confirmed that research participants have been socialized into the use of ethnomedical plants. Societies use medicinal plant because they have been socialized to use them. They mentioned that they have socialized by their grandparents as well as their parents [2]. Other research participants confirmed that this information is societally known and further classified it as a cultural inheritance from their ancestors. Socialisation knowledge shows definitely that indigenous cultures have a historical in-depth knowledge of certain botanical information which proves a relationship between culture and environment. Community elders are the repositories of the knowledge on herbal remedies. Ethnic groups use traditional

medicine for many reasons. These ethnic groups may belong to communities whose habits and treatment-seeking behaviour resort to traditional medicine as the first choice. They prefer traditional medicine believing, for example, that they produce fewer side effects or cure them more effectively. They may have experienced a failure with a modern treatment and want to try traditional methods. They may want to avoid modern health facilities because they perceive them as expensive, and unfriendly to them [15].

- ***Sub-theme 3: Accessibility of Ethnomedicinal Plants***

The world's population relies on traditional healing modalities and herbals because of economic, primary health care and wellness purposes [37]. Data collection revealed that these ethnomedicinal plants are easily accessible and users have been culturally socialised to rely on these plants/herbs instead of trusting Western remedies. Research participants from three sampled rural communities confirmed that they domestically access these ethnomedicinal plants from their yards, they get them from their neighbours who are growing them in their gardens. Others mentioned that they access them from the mountains while others mentioned that they get them from local traditional healers who do not charge them when they need them. It became clear that these plants are not just any form of vegetation or weed, they are plants that have gained an indigenous identity. Research participants also voiced that they live far from health facilities which makes it difficult to access them because of exorbitant transportation fees. Unemployment was also listed as another pertinent issue. Participants confirmed that most people in the areas where research was conducted are still not employed, those who are employed cannot afford pharmaceutical remedies because they are expensive. They also expressed that travelling to the nearest health facility costs between R30 to R60, and they also emphasised that other communities pay even more than these transportation fees. Those who live close to the health facilities mentioned that the service is still extremely poor and also expressed that such facilities are not well resourced. People are expected to make bookings in advance just to see the doctor because there are not enough medical practitioners to respond to the health needs of the people. This on its own encourages people to commit to the usage of ethnomedical plants because these plants are within the community. If accessed from neighbours, there is no fee attached. If accessed from local traditional healers, they are also cheap and sometimes even free. Research participants also indicated that approaching the local traditional healer is convenient because they don't wait for hours and weeks to see the healer and they are accessible at any given time. Health clinics operate during certain hours, and they close, so when there is an emergency people cannot access these facilities.

- ***Sub-theme 4: Domestic use of Ethnomedicinal Plants***

In South Africa, traditional medicine remains the first point of call for significant proportion of population seeking primary health care needs [1]. The tables below depict themes that emerged during data analysis such as the preparation, drinking measurements, age restrictions, daily dosage, and side effects of used ethnomedicinal plants. It was noted during data collection that these ethnomedicinal plants are only known in Nguni languages (mostly in isiZulu), the English translation was gathered as referenced. Data analysis revealed that users of these plants have rely on indigenous knowledge to guide the preparation and the domestic usage guide when processing these plants to cure flu and associated symptoms. These plants remain indigenous knowledge which has been passed from generation to generation. Data analysis also revealed that certain ethnomedical plants are used according to age. Children or babies are not given dosages equal to adults. Daily dosages have been reported without any recorded side effects, which could have prompted users to revise them or not use them at all. Users continue to rely on these measurements as well as daily dosages to treat flu and associated symptoms and the usage knowledge is also known by youth. Passing this vital information to the youth is a way of preserving the knowledge so that it does not die when the elders die. Amid the era of child-headed families in many societies, this kind of information could also benefit children who are heading households and they could also pass it down to their future generations too.

Table 2: English translation of ethnomedicinal plants [20 Mhlongo]

Ethnomedicinal plant	***Preparation***	***Usage***	***Drinking measurements***	***Daily dosage***	***Side effects***	***Usage notes***
Raw garlic and raw honey from bees	Chop/shred and boil	Oral usage (drink)	1 teaspoon of each in a cup of boiled water	3 times a day or more than three times	None	Raw garlic and raw honey are not given to babies. Children at age 6 are given a teaspoon of mixed water once a day. Other ages can drink it without any supervision.
Umhlonyane *"Artemisia afra"*	Chop/shred/ dry and then boil	*Ukugquma* "Steaming", *ukuthoba umzimba* "thermotheraphy", *and* oral usage (drink)	*1 teaspoon of dried umhloyane* leaves	Drink half a cup/glass. Steam twice a day	None	*Umhlongane* can be used for steaming, it could also be used for drinking as it is believed that it kills flu bugs and other respiratory infections. A sickly person who cannot drink or steam can also have someone doing thermotheraphy on them. It keeps the body calm and relaxed.
Ihlaba, inhlabane, inkalane *"Aloe" also known as Asphodelaceae*	Chop/shred drink cold or hot	*Ukugquma* "Steaming", *ukuthoba umzimba* "thermotheraphy", and oral usage (drink)	1 teaspoon of shredded aloe and mix it with boiled water	3 times a day or more than three times	None	*Inhlaba* can be used for steaming, it could also be used for drinking as it is believed that it kills flu bugs and other respiratory infections. A sickly person who cannot drink or steam can also have someone doing thermotheraphy on them. It keeps the body calm and relaxed
Isivimbampunzi "Alliaceae"	Chop/ shred/dry and then boil	*Ukugquma* "Steaming", *ukuthoba umzimba* "thermotheraphy", and oral usage (drink)	1 teaspoon of shredded aloe and mix it with boiled water	3 times a day or more than three times	*None*	*Iisivimbampunzi* can be used for steaming, it could also be used for drinking as it is believed that it kills flu bugs and other respiratory infections. A sickly person who cannot drink or steam can also have someone doing thermotheraphy on them. It keeps the body calm and relaxed
Umqwili *Alepidea amatymbica*	Chop/ shred/dry and then boil	*Ukugquma* "Steaming", *ukuthoba umzimba* "thermotheraphy",	1 teaspoon of shredded tree branch/leaves and mix it with boiled water	3 times a day or more than three times	None	*Umqwili* can be used for steaming, it could also be used for drinking as it is believed that it kills flu bugs and other respiratory infections. A sickly person

		and oral usage (drink)				who cannot drink or steam can also have someone doing thermotheraphy on them. It keeps the body calm and relaxed
Ikhathazo *Alepidea amatymbica*	Chop/ shred/dry and then boil	*Ukugquma* "Steaming ", *ukuthoba umzimba* "thermoth eraphy", and oral usage (drink)	1 teaspoon of shredded leaves and mix it with boiled water	3 times a day or more than three times	None	*Ikhathazo* can be used for steaming, it could also be used for drinking as it is believed that it kills flu bugs and other respiratory infections. A sickly person who cannot drink or steam can also have someone doing thermotheraphy on them. It keeps the body calm and relaxed
Ikhambi lombila *Amaranthaceae*	Chop/ shred/dry and then boil	*Ukugquma* "Steaming ", *ukuthoba umzimba* "thermoth eraphy", and oral usage (drink)	1 teaspoon of shredded leaves and mix it with boiled water	3 times a day or more than three times	None	*Ikhambi lombila*can be used for steaming, it could also be used for drinking as it is believed that it kills flu bugs and other respiratory infections. A sickly person who cannot drink or steam can also have someone doing thermotheraphy on them. It keeps the body calm and relaxed
Uwatela *Black wattle*	Chop/ shred/dry and then boil	*Ukugquma* "Steaming ", *ukuthoba umzimba* "thermoth eraphy", and not for drinking	1 teaspoon of shredded aloe and mix it with boiled water	3 times a day or more than three times	None	*Uwatela* can be used for steaming. A sickly person who cannot drink or steam can also have someone doing thermotheraphy on them. It keeps the body calm and relaxed

Table 3: Sub-theme 5: Knowledge holders of domestic use of ethnomedicinal plants

South Africa, has a rich plant diversity and is also referred to as one of the hotspots areas within the country [1, 2]. Traditional societies, also known as rural communities are still using ethnomedicine or herbal therapy in treating various infections, mostly because plant species are abundant in nature in their surrounding environment, less priced and are believed to pose less or no side effects [1]. The table below avow that communities are still grounded on traditional practices and have their own cultural schemas and ethnomedical ways of responding to illnesses or infections like the flu without consulting medical practitioners.

Ethnomedicinal plant	***Preparation***	***Drinking measurements***	***Daily dosage***	***Knowledge holders in the family or society***
Raw garlic and raw honey from the bees	Chop/ shred and boil	1 teaspoon of each in a cup of boiled water	3 times a day or more than three times	School going kids, youth, and elders
Umhlonyane	Chop/	1 teaspoon of dried	Drink half a	• Traditional healers

"Artemisia afra"	shred/dry and then boil	*umhloyane* leaves	cup/glass. Steam 2 times a day	• Family elders (including the youth)
Inhlaba, inhlabane, inkalane *"Aloe" also known as Asphodelaceae*	Chop/shred drink cold or hot	1 teaspoon of shredded aloe and mix with boiled water	3 times a day or more than three times	• Traditional healers • Family elders (including the youth)
Isivimbampunzi "Alliaceae"	Chop/shred/dry and then boil	1 teaspoon of shredded aloe and mix with boiled water	3 times a day or more than three times	• Traditional healers • Family elders (including the youth)
Umqwili *Alepidea amatymbica*	Chop/shred/dry and then boil	1 teaspoon of shredded tree branch/leaves and mix with boiled water	3 times a day or more than three times	• Traditional healers • Family elders (including the youth)
Ikhathazo *Alepidea amatymbica*	Chop/shred/dry and then boil	1 teaspoon of shredded leaves and mix with boiled water	3 times a day or more than three times	• Traditional healers • Family elders (including the youth)
Ikhambi lombila *Amaranthaceae*	Chop/shred/dry and then boil	1 teaspoon of shredded leaves and mix with boiled water	3 times a day or more than three times	• Traditional healers • Family elders (including the youth)
Uwatela *Black wattle*	Chop/shred/dry and then boil	1 teaspoon of shredded aloe and mix with boiled water	3 times a day or more than three times	• Traditional healers • Family elders (including the youth)

Table 4: Sub-theme 6: **Flu and associated symptoms cured/ treated by ethnomedicinal plants:**

Medicinal plants are an integral part of life, as they produce secondary metabolites to fight disease and that humans have rationalised medicinal plants and their chemical components in various forms for therapeutic use [1, 27]. The table below depicts ethnomedicinal plants and the flu/associated symptoms that are used by people in their geographical areas. What comes forth is that these ethnomedicinal plants cure or respond to flu other and associated symptoms. This study presents the following ethnomedicinal plants which include umhloyane as having been used to prevent and cure COVID-19. The use of ethnomedicinal plants during the worldwide COVID-19 health pandemic could prove to be part of the solution, as there seems to be scholarship that addresses the contribution of ethnomedicinal plants to fight the pandemic.

Ethnomedicinal plant	***Preparation***	***Usage***	***Flu and associated symptoms cured healed or treated***
Raw garlic and raw honey from the bees	Chop/shred and boil	Oral usage (drink)	Flu, tight chest, sore throat, tonsils, and a persisting cough.
Umhlonyane *"Artemisia afra"*	Chop/shred/dry and then boil	Steaming and oral usage	Flu, tight chest, sore throat, kills flu bugs in the system, cools the body temperature when steaming. COVID-19 flu infection and rehabilitation.
Ihlaba, inhlabane, inkalane *"Aloe" also known as Asphodelaceae*	Chop/shred drink cold or hot	Oral usage	Flu and a sore throat.
Isivimbampunzi "Alliaceae"	Chop/shred/dry and then boil	Steaming and oral usage	Flu, tight chest, sore throat, kills flu bugs in the system, cools the body temperature when steaming.
Umqwili *Alepidea amatymbica*	Chop/ shred/dry and then boil	Steaming and oral usage	Flu, tight chest, sore throat, kills flu bugs in the system, cools the body temperature when

			steaming.
Ikhathazo *Alepidea amatymbica*	Chop/ shred/dry and then boil	Steaming and oral usage	Flu, tight chest,sore throat, kills flu bugs in the system, cools the body temperature when steaming
Ikhambi lombila *Amaranthaceae*	Chop/ shred/dry and then boil	Steaming and oral usage	Flu, tight chest, sore throat, kills flu bugs in the system, cools the body temperature when steaming
Uwatela *Black wattle*	Chop/shred/dry and then boil	Steaming and oral usage	Flu, tight chest, sore throat, kills flu bugs in the system, cools the body temperature when steaming.

Conclusion and recommendations

The use of ethnomedicinal plans has been preserved as indigenous knowledge as well as the symbolic identity of many African countries [30, 22]. This paper has noted that rural communities/cultures have a rich knowledge of ethnomedical plants that they have used for decades to treat flu symptoms and even heal people suffering from flu. This paper has noted that rural communities have protected this information even though societies have been transformed by advanced technology as well as living patterns, they are still holding on dearly to this indigenous knowledge. Data analysis revealed that communities take pride in saying that this is how they were socialised and that such ethnomedical plants have never been harsh on people but instead have saved lives. The use of ethnomedicinal plants to cure flu and symptoms is an aspect of African activism that these rural communities showed to withstand advertise of COVID-19 on their lives. Using ethnomedical plants, people mixed their indigenous remedies and deemed them safe. Ethnomedicinal plants give rural community the agency to take full responsibility of their health. The discussion of themes in thisrecognize paper confirms that such ethnomedical plants did not result in any fatalities on their users and further, revealed that the uhlonyane plant was used to treat/cure and even rehabilitate people from COVID-19. Data analysis positions African societies/cultures as rich in responding to ailments that threaten their survival through ethnomedicinal plants. One of the reasons for the use of such medicinal plants is that people recognise them as useful in their lives; they are struggling to access medical facilities because they are far from them and they cannot afford the transportation to nearest health facilities because they are unemployed. Furthermore, it remarks that the failure to recognise or understand the science of indigenous ethnomedicinal plants means that African countries will always be dependent on Western medicines, which diminish their healthcare systems. It would be an insult not to recognise that rural people have their indigenous ways of responding to their health issues. The recognised use of ethnomedicinal plants has been historically acknowledged by the traditional societies as they used them for dietary supplements and herbal medicine [27, 37]. This paper suggests that government, as well as the medical sector, should recognise African medicinal plants and not be classified as 'weeds or plants that only gain recognition when tested in scientific laboratories and summoned to match pharmacology standards. The process of recognition should not be facilitated by scientists only but rather by traditional experts who will not be biased toward the use of medicinal plants. Ethnomedical plants should be recognised as free, domestic remedies that should be protected from being restrained by Western intellectual lenses. The South African government and health departments in Southern Africa should champion a medical health system that is radical, robust and decolonial in its attempt to integrate cultural perspectives into the system such as those concerning the use of ethnomedicinal plants in treating illness and disease. Ethnomedicinal plants should be recognised as having the potential to treat and cure practical health problems that people and rural/indigenous/traditional societies go through. Findings in this paper assert that indigenous recognise people using ethnomedicinal plants as 'faculty', keepers of indigenous knowledge; ethnomedicinal plants as potential medicines. The failure to recognise the role of ethnomedical plants would suggest that the South African government as well as health departments in Southern Africa is rather 'captured' in thinking that all medical solutions can only be suggested by the West. It would also demonstrate that it views African societies as being dependent on

Western thinkers, neglecting their traditional wisdom. This paper concludes by recommending extended research on ethnomedical plants across all provinces in South Africa as well as in Southern Africa. African indigenous knowledge about the use of ethnomedical plants is a societal resource that should be preserved as they have proved to be safe to cure flu and other symptoms during the advent of COVID-19.

Acknowledgment

We thank all the research participants for sharing this valuable information.

Funding

No funding.

Author Contributions

All authors contributed equally.

Conflict of interest

The study did not have any conflict of interest either during data collection or during data analysis.

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