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The Selected Effects Embedded from Illegal Occupation and Theft of Medicinal Plants: A Systematic Study on Rural Areas of Limpopo Province

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Abstract

The aim of this study explore the selected effects of illegal occupation and theft of medicinal plants, focusing on Limpopo Province rural areas. Notably, these plants can be used for primary health care and food purposes, amongst others. This stemmed from the associated selective effects imposed on availability of these plants by illegal occupation in the 'traditional herbal medicine' and related theft by local people. As a result, the depletion of these plants is negatively witnessed due to illegal occupation and theft. From a qualitative standpoint, this study used the non-empirical research design: Systematic review. Keywords were used to obtain relevant information on this subject, using non-probability: Purposefully sampling. The analysed grey literature and primary research studies from peer-reviewed and published databases were restricted to 1987-2021 [Not in order of sequence nor importance], while exercising the exclusion and inclusion criteria throughout this process. The collected data was analysed using the inductive Textual Content Analysis (TCA) method. The Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) and Critical Appraisal Skill Programme (CASP) were employed to ensure trustworthiness of the findings of this study. The results of this study reveals that illegal occupation in the traditional herbal medicine market and theft of medicinal plants drastically affect their availability, as some of the local illegal traders seem to be lacking adequate conservation methods to minimise unfortunate current depletions. Notable studies on illegal occupation and theft of these plants strongly indicates that their trading can endanger these plants, leading to extinctions. For recommendations, this study can be used as a framework to educate relevant stakeholders and to create awareness on the associated effects of illegal occupation and theft of medicinal plants. In addition, Law Enforcement Agencies (LEA) deterrent strategies should be urgently applied when necessary.

Keywords: *Illegal Occupation; Limpopo Province; Medicinal Plants; Rural Areas; Selected Effects; Systematic Study; South Africa; Theft*

1. Introduction

Illegal use of natural resources is a threat to biodiversity globally, but research on illegal activities has methodological challenges (Gavin *et al*., 2010). Traditional medicine is used globally and has a rapidly growing economic importance. In developing countries, Traditional Medicine is often the only accessible and affordable treatment available (Bussmann & Sharon, 2006). Medicinal plants are important to humanity and continue to be used worldwide as a source of food and basic healthcare, some of the medicinal plants are recommended for their therapeutic values (Hassan *et al*., 2012). Historically, criminological research has examined offender motivations, patterns of offending, or general causes of criminality (Schneider, 2008). It is proposed here that theft of more exotic property, such as endangered plants, animals, and their parts, occurs as a result of these same dynamics—thieves, poachers, and handlers trade these items because somewhere there is a handler who has people ready and willing to purchase the ill-gotten goods(Schneider, 2008). Illegal access and trade in natural resources is often tied to corruption, environmental degradation, the reduction of potential government revenue for general economic development, and so on. Illegal forest activities have been associated with biodiversity loss, soil degradation, and reduction of water provision and quality as well as carbon storage capacity (Putzel *et al*., 2015).

Several factors contribute to the loss of medicinal plants. These include habitat loss, population increase which could lead to illegal occupation. Lack of readily discernible differences between species also make it difficult to control illegal harvesting (Sheldon, Balick, Laird & Milne Jr, 1997). Pimm *et al*. (2014) attest that environmental degradation through aspects such as over-exploitation of natural resources, pollution, and deforestation can contribute to resource scarcity, particularly arable land, water, genetic resources, medicinal plants, and food crops. In addition, over-exploitation of native plants contributes largely to environmental degradation. The extinction of native plants is one factor responsible for environmental degradation attributed to human overpopulation, continued human population growth and over consumption of natural resources (Bulte & Van Kooten, 2000). Humankind had a greater impact on the status of biodiversity than on any of the other components of the natural environment (Van Wyk, 2013).

In South Africa [Limpopo rural areas included], local vegetation are depleted and therefore, good management and conservation of biodiversity, the quality of life of all South African medicinal plants will improve, especially in rural communities of Limpopo Province (Mabogo, 1990; Rankoana, 2000; and Rankoana, 2001). It is proven and confirmed that unsustainable use [theft] of medicinal plant constrains the productivity, composition and diversity of terrestrial ecosystems, equally, human activity such as due to illegal occupation and theft of medicinal plants is the biggest cause of degradation of biodiversity, Turner *et al.* (1990). Sahney *et al*. (2010) agree that humans have accelerated the rate of plant loss which, coupled with climate change effects such as unpredictable rainfall, drought and erosion, caused serious environmental degradation.

Subsequently, the issue of extinction of these plants is often recognised as a major problem across Limpopo Province rural communities, as the issues surrounding commercialising the medicinal plants are proven to be one of the existing threats on availability nor remaining medicinal plants. Thus, the objective of this study was systematically review related literature studies, confined to the selected effects embedded from illegal occupation and theft of medicinal plants, focusing on rural areas of Limpopo Province.

2. Literature Review

2.1 Demarcated Illegal Occupation Through Medicinal Plants Trading

It proposes that an occupation may be considered illegal if it is involves the violation of a peremptory norm of international law that operates *erga omnes,* and is related to territorial status (Ronen, 2008). Accordingly, illegal occupations are primarily those achieved through violation of the prohibition on the use of force and of the right to self-determination, or maintained in violation of the right to self-determination (Ronen, 2008). From an environmental standpoint, illicit economies can lead to a broad array of negative impacts, with complex interactions (Brombacher *et al.,* 2021). Amid the calls for urgent action to address climate change, habitat destruction, deforestation, land degradation and the extinction of species, illicit economies emerge as one of the keys yet understudied push factors for these challenges (Brombacher *et al.,* 2021). These are global problems that affect all countries to a certain degree, but especially states affected by fragility and instability in the global south (Brombacher *et al*., 2021). For example, illicit drug crop cultivation, drug production and the linkages with other illicit economies such as illegal mining, wildlife trafficking, illegal logging, and land grabbing have serious environmental implications, not only for the ecosystems affected, but also for environmental governance systems (and community-based governance systems) in several regions around the world (Brombacher *et al.,* 2021).

In South Africa [Limpopo rural areas included] there are various factors that play an essential role to the development of the country's economy and fighting of unemployment, selling of medicinal plants is also a contributing factor through research and exploitation of the natural resources that are found in the floral kingdom (Street & Prinsloo, 2013),however, as the human population grow the demand of medicinal plants also increases and the supply also attempt to compliment the demand, thus, commercialisation of medicinal plants becomes the challenge of effectively managing the way in which people harvest these medicinal plants and the amount in which they harvest and harvesters disregard conservation measures that are implemented for preservation of these (Godoy & Bawa 1993; Dovie *et al.* 2002; and Luoga *et al.* 2004). Overexploitation of medicinal plants is a impose danger to the existence of these plants and this is due to the intensive harvesting in relation to high demand (Street & Prinsloo, 2013). Overexploitation of medicinal plants, indiscriminate collection of medicinal plants, uncontrolled deforestation, and destruction of medicinal plants existence due to the high demand of these medicinal plants and for financial gain all affect their availability (Chen *et al.* 2016).

As the demand of medicinal plants increase, so is commercial demand, this also causes the destruction of medicinal plants gathering practices, and rising hereditary exposure to natural disasters, resulting in serious threat in the availability and supply of medicinal (Street & Prinsloo, 2013). A great number of these wild plants have potential to generate food, medicines and income to support people's livelihoods (Agea *et al*., 2008). Illegal occupation of traditional herbal medicine therefore will result in increased demand which in turn may put more pressure on the source populations thereby compromising steady natural supply of these plants to the people who entirely depend on them as sole source of livelihoods (Akankwasah *et al*., 2012).

Generally, medicinal plants also face a multitude of threats from other factors including habitat loss through various ways (Such as clearances of land for agricultural practices and human settlements), the growth of the market economy, globalization, and acculturation (Ramakrishnappa, 2003). Lack of both management and knowledge of conservation strategies are also threats to indigenous medicinal plant species (Semenya & Maroyi, 2019). Traditionally the gathering of medicinal plants was restricted to trained traditional healers, some received strict instruction to dig for plants just before winter and after seed set (Ngqobe, 1993) and seldom were medicinal plants ring-barked or uprooted (Cunningham, 1991). Increasing demand and fewer wild stocks coupled with commercial incentive have led to a disregard for

traditions (Wild & Mutebi, 1997), a profusion of untrained gatherers and the felling of fruit trees (Wilson, 1989; Dzerefos *et al.* 1999).

However, sets of recommendations have been compiled relating to the conservation of medicinal plants (Hamilton, 2004). These include, the need for co-ordinated conservation action, based on both in situ and ex situ strategies; inclusion of community and gender perspectives in the development of policies and programmes; the need for more information on the medicinal plant trade; the establishment of systems for inventorying and monitoring the status of medicinal plants; the development of sustainable harvesting practices; encouragement for microenterprise development by indigenous and rural communities; and the protection of traditional resource and intellectual property rights (Hamilton, 2004).

2.2 The Selected Effects of Theft on Medicinal Plants

When plants have a recognized monetary value, their collection on private land without the owner's consent is now sometimes considered by the courts to be theft (De Klemm, 1991). Statutes making it a criminal offence to collect wild plants for profit on the land of another are still, however, very rare (De Klemm, 1991). It is provided that a person who picks medicinal plants for reward, sale or other commercial purpose, is guilty of theft (De Klemm, 1991). The uprooting of any wild plant, whether or not for profit, is also regarded as theft (Bonyhady, 1987).

It is doubtful, however, that the potential imposition of criminal penalties for the theft of wild plants will be sufficient to deter collectors, as few landowners will normally be prepared to warden their property and to institute proceedings against thieves unless the plants concerned have a high market value (as in the case, for instance, of truffles, Tuber spp) (De Klemm, 1991). Nevertheless, even if outsiders adequately protected wild plants on private land from collection, they would not be protected against the action of the landowner himself, who, because of his property rights, is always free to exploit them or destroy them at will (De Klemm, 1991). In any case, troublesome living conditions in low-income nations, added to by habitation in informal settlements, the absence of basic essential, high rates of relocation, overcrowded living circumstances, family viciousness contribute to the theft of medicinal plants (Musvipwa, 2019). With increasing demand for wild plants products, there is need for a steady supply of wild plants to meet this growing demand, which lead to theft of medicinal plants by the suppliers (Akankwasah *et al.* 2012).

Theft of medicinal plants without planting, deforestation and the increased marketing of wild plants may result in the decline and sometimes near-extinction of several valued medicinal plant species around the communities (Ticktin, 2004). However, the demands for medicinal plant species by the majority of the people in developing countries especially in Africa have been met by destructive harvesting practices (Semenya & Maroyi, 2019). This involves indiscriminate collection of species, unacceptable collection frequencies, harvesting of roots via uprooting entire species, and ring-barking of stem bark, amongst the others (Semenya & Maroyi, 2019).

Theft of medicinal plant species in some other taxonomic groups have clearly contributed substantially to global extinctions. The link between alien plant invasions and extinction of native plant species is much less clear (Bellard *et al*., 2016). The continuous harvest of cycads will not only affect their availability and distribution but can also contribute to the hydrological imbalance of the affected area thus impacting water conservation and watershed, hence the need for their continued existence.

3. Methodology

This study used the non-empirical research design: Systematic review. Dan (2017) states that this research design is meant to review progress in a specific study field *[The selected effects embedded from*

illegal occupation and theft of medicinal plants: A systematic study on rural areas of Limpopo Province]. While, this research design aim to identify, evaluate and summarise the findings of the reviewed research studies by making available evidence more accessible to decision-makers (Yannascoli *et al.*, 2013) and Bwanga (2020). To develop understanding and obtaining the relevant information on this subject, the collected data stemmed from relevant websites such as ResearchGate (RG), Science.gov, PubMed, and Mendeley. Moreover, the following electronic databases – Google Scholar, EbcoHost, Emerald Insight, Jstor, ProQuest, Sabinet, Sage Online and Science Direct, were also visited (Maluleke, 2020), following set predetermined steps of this research design. Keywords were used to obtain relevant information on this subject, using non-probability: Purposefully sampling. The analysed grey literature and primary research studies from the indicated peer-reviewed and published databases were restricted to 1987-2021 [Not in order of sequence nor importance], while exercising the exclusion and inclusion criterias throughout this process. The PRISMA and CASP were employed to ensure trustworthiness, relevance and examinations of the findings of this study.

4. Study Findings and Discussions

The reviewed literature studies in section 1 and 2.1 of this study, discussed the effects of illegal occupation through trading of medicinal plants in Limpopo rural areas. Ronen (2008) in section 2.1 of this study defined that an occupation may be considered illegal if it is involves the violation of a peremptory norm of international law that operates *erga omnes*, and is related to territorial status. Accordingly, Ronen (2008) revealed that illegal occupations are primarily those achieved through violation of the prohibition on the use of force and of the right to self-determination, or maintained in violation of the right to self-determination in section 2.1 of this study. Based on this notion illegal occupation also involve the medicinal plants and traditional medicine illegal traders.

Traditional Medicine is used globally and has a rapidly growing economic importance. Furthermore, Bussmann and Sharon (2006) in section 1 of this study presented that in developing countries such as South Africa, Traditional Medicine is often the only accessible and affordable treatment available. Medicinal plants are important to humanity and continue to be used worldwide as a source of food and basic healthcare, some of the medicinal plants are recommended for their therapeutic values (Hassan *et al*, 2012). According to these results, medicinal plants contributes largely in in the growing of economy in South Africa [Limpopo Province rural areas included]. This is due to the importance of the plants in the livelihoods of the community members. Medicinal plants are used for various reasons in Limpopo rural areas, most community members use these plants for food, primary health care among others for the sustainability of their livelihood. Therefore, medicinal plants remain crucial in Limpopo rural areas.

Gavin *et al*. (2010) in section 1 of this study stated that illegal use of natural resources is a threat to biodiversity globally, but research on illegal activities has methodological challenges. According to Putzel *et al*. (2015) illegal access and trade (Illegal occupation) in natural resources is often tied to corruption, environmental degradation, the reduction of potential government revenue for general economic development, and so on. Turner *et al*. (1990) confirmed in section 1 of this study that human activity such as illegal occupation and theft of medicinal plants is the biggest cause of degradation of biodiversity. Sahney *et al*. (2010) in section 1 of this study also agree that humans have accelerated the rate of plant loss which, coupled with climate change effects such as unpredictable rainfall, drought and erosion, caused serious environmental degradation. Based on the presented results, due to the need of medicinal plants in rural areas, their survival is threatened. The results also support that human activities such as illegal occupation and theft of medicinal plants contribute largely to the loss of medicinal plants in the wide which could results to extinction. Hence, illegal occupation have negative effect of the survival of medicinal plants.

According to Street & Prinsloo (2013), in South Africa [Rural areas in Limpopo Province included] there are various factors that play an essential role to the development of the country's economy and fighting of unemployment, selling of medicinal plants is also a contributing factor through research and exploitation of the natural resources that are found in the floral kingdom. Furthermore, Godoy and Bawa (1993); Dovie *et al*. (2002); and Luoga *et al*. (2004) in section 2.1 of this study concurred that as the human population grow the demand of medicinal plants also increases and the supply also attempt to compliment the demand, thus, commercialisation of medicinal plants becomes the challenge of effectively managing the way in which people harvest these medicinal plants and the amount in which they harvest and harvesters disregard conservation measures that are implemented for preservation of these.

These results presents that, trading of medicinal plants can be considered as a contributing factor to the economy of South Africa, however it results in illegal occupation. It further present that there is a high demand of medicinal plants by the community members which leads to challenges in managing the harvesting and the quantity of the plants harvested. Conservation and preservation of medicinal plants against illegal traders becomes almost impossible due to their high demand.

According to Chen *et al*. (2016) in section 2.1 of this study, overexploitation of medicinal plants, and indiscriminate collection of medicinal plants, uncontrolled deforestation, and destruction of medicinal plants existence due to the high demand of these medicinal plants and for financial gain all affect their availability. Moreover, Street & Prinsloo (2013) echo that as the demand of medicinal plants increase, so is commercial demand, this also causes the destruction of medicinal plants gathering practices, and rising hereditary exposure to natural disasters, resulting in serious threat in the availability and supply of medicinal.

Therefore, Akankwasah *et al.* (2012) highlighted that illegal occupation of traditional herbal medicine therefore will result in increased demand which in turn may put more pressure on the source populations thereby compromising steady natural supply of these plants to the people who entirely depend on them as sole source of livelihoods. As presented in by these results, the high demand of medicinal plants and the expectation of financial gain by the traders greatly impact the survival of these plants negatively with a possibility of extinction. Moreover, illegal occupation in the traditional herbal medicine does not do any good in the existence of medicinal plants. This is due to the high demand that is imposed to the traders and they want to meet the demand by increasing their supply which endanger the existence of medicinal plants by putting them under pressure.

Data presented in section 1 and 2.2 of this study, displayed that the effects of theft of medicinal plants in Limpopo rural areas. According to Schneider (2008) in section 1 of this study, historically, criminological research has examined offender motivations, patterns of offending, or general causes of criminality. Schneider (2008), further stated that theft of more exotic property, such as endangered plants, animals, and their parts, occurs as a result of these same dynamics—thieves, poachers, and handlers trade these items because somewhere there is a handler who has people ready and willing to purchase the ill-gotten goods. Based on this notion theft of medicinal plants is considered as a criminal activity. It is also stated that one of the reason medicinal plants are being stolen is that there are people who are willing to purchase the, resulting from the high demand of medicinal plants for the sustainable livelihoods.

Furthermore, Turner *et al.* (1990) in section 1 of this study showcased that unsustainable use [theft] of medicinal plant constrains the productivity, composition and diversity of terrestrial ecosystems. Continually, Turner *et al.* (1990) confirmed in section 1 of this study that human activity such as due to illegal occupation and theft of medicinal plants is the biggest cause of degradation of biodiversity. Based on these results it is evident that, theft of medicinal plants put a lot of strain and pressure of their survival. It is also provided that degradation of medicinal plants is also caused by human activities such as theft of these plants.

Consequently, De Klemm (1991) in section 2.2 of this study highlighted that when plants have a recognised monetary value, their collection on private land without the owner's consent is now sometimes considered by the courts to be theft. Moreover, De Klemm (1991) mentioned that statutes making it a criminal offence to collect wild plants for profit on the land of another are still, however, very rare. The uprooting of any wild plant, whether or not for profit, is also regarded as theft as echoed by Bonyhady (1987) in section 2.2 of this study. Based on this notion people illegally collect medicinal plants from private or secured space for monetary gain without permission from the land owners which is also classified as theft. It is also stated that collecting any wild plant an individual should have consent, otherwise it is theft.

Musvipwa (2019) mentioned in section 2.2 of this study that in any case, troublesome living conditions in low to no income nations, added to by habitation in informal settlements, the absence of basic essential, high rates of relocation, overcrowded living circumstances, family viciousness contribute to the theft of medicinal plants. However, Ticktin (2004) in section 2.2 of this study revealed that theft of medicinal plants without planting, deforestation and the increased marketing of wild plants may result in the decline and sometimes near-extinction of several valued medicinal plant species around the communities. From these results, the unpleasant living conditions and low to no income states of community members' contribute to theft of medicinal plants in Limpopo rural areas. Although, individuals steal medicinal plants for financial gain, it threaten the survival of these plants because they collect them without protecting or planting them again which could lead to extinction.

Furthermore, De Klemm (1991) confirmed in section 2.2 of this study that, even if wild plants were adequately protected on private land from collection by outsiders, they would not be protected against the action of the landowner himself, who, as a consequence of his property rights, is always free to exploit them or destroy them at will. Therefore, Bellard *et al.* (2016) commented in section 2.2 of this study that theft of medicinal plant species in some other taxonomic groups have clearly contributed substantially to global extinctions. The link between alien plant invasions and extinction of native plant species is much less clear. Based on this notion, preservation of medicinal plants by individual in a private property could not work in some cases since the property owner will have the right to destroy the plants whenever they wish to.

From the presented results it is clear that illegal occupation and theft of medicinal plants have great negative effects of the survival of these plants. Although some of the factors leading people to illegal occupation and theft of medicinal plans is due to lack of employment and for monetary gain it does not justify the damage that is done on the existence of medicinal plants. Theft of medicinal plants is a punishable crime. The high demand of these medicinal plants by community members also motivates the illegal occupation and theft of these plants, since the traders wants their supply to compliment this demand. Also limited access to western health facilities contribute largely to illegal occupation and theft of medicinal plants. Therefore, illegal occupation and theft of medicinal plants in rural areas of Limpopo Province negatively affects these plants largely, threatening them with extinction.

5. Identified Study Themes and Challenges

- **High Demands of Medicinal Plants:** Street and Prinsloo (2013) in paragraph 1 of this study, Chen *et al.* (2016) in paragraph 1 of this study, Williams *et al.* (2013) and Ndhlovu *et al.* (2021) in section 2.1 of this study confirmed that most communities depends on medicinal plants for survival, as well as to achieve their primary health care, this often increase demands of these plants, as available on various markets, either legal nor illegal.

- **Illegal Occupation and Theft of Medicinal Plants:** The illegal harvesting and thefts of these plants for food and medicinal purposes, as well as urbanisation, among others affects the availability of these plants species in rural areas (Hamilton, 2004).

- **Contributing Factors to Illegal Occupation and Theft Medicinal Plants:** It is stated that in South Africa there are various factors contributing to growth theft of medicinal plants in South African [Rural areas in the Limpopo Province included], these include the declining economy and in an attempt to fight unemployment; selling of medicinal plants is touted as one of the active method to escape this reality. Therefore, thoroughly research on 'exploitation of natural resources found in the floral landscape is highly sought, as indicated by Cunningham (1991)

- **Destruction of Wild Harvesting:** Habitat destructions owing to the high demands of these plants affect their availability. As the demands of these increases, so is commercial demands, this also causes destructions of wild harvesting practices, and growing genetic vulnerability of natural disasters, resulting to serious threats based on availability and supply of these plants.

6. Study Conclusions and Recommendations

The objective of this study was to explore the effects of illegal occupation and theft of medicinal plants, solely focusing on South Africa (Rural areas in the Limpopo Province). Therefore, it was recognised that majority of South African rural communities largely depends on the use of these plants for their primary health care purposes, positively leading to their high demands. This consequently led to high rate of illegal occupation and theft of these plants in the selected rural areas. The findings of this study reflects that there are Two (02) main factors contributing to illegal occupation and theft of medicinal, namely: **1)** The high demand on their different valuable usage, and; **2)** Opportunity to generate necessary income. Moreover, in spite of [All] Western health care facilities available in South Africa, provided by the National government; majority of individuals in rural communities continue preferring the use of African medicinal plants for their primary health care and most of them view it as an income generator, based on high unemployment rates.

Studies on illegal occupation and theft of these plants strongly indicates that their trading can endanger these plants, leading to extinctions. Subsequently, the issue of extinction of these plants is often recognised as a major problem across Limpopo Province rural communities, as the issues surrounding commercialising these plants has been proven to be one of the existing threats on availability nor remaining medicinal plants. As a resort, the following recommendations are made for possible implementations relevant stakeholders in this study field.

For recommendations, this study can be possibly used as a framework to educate relevant stakeholders and to also create awareness on the associated effects of illegal occupation and theft of medicinal plants. Also law enforcement should be applied when necessary. Furthermore, future research studies could be done relating to this subject to ensure preservations and protections of these plants. For the purposes of offering good practices of ensuring proper occupation in traditional medicine market, rural areas in the Limpopo Province are no exception to these effects; this study recommends the following, as illustrated in Table 1 of this study.

Table 1: Recommendations to improve study objective and identified themes and challenges

The study objective and identified themes and challenges	Recommendations of improving study objective and identified themes and challenges
Study objective	**Evaluating the selected effects embedded from illegal occupation and theft of medicinal plants, using systematic study on rural areas of Limpopo Province**
	The revealed selected effects under the study themes and challenges display that illegal occupation and theft of medicinal plants. The conversation, preservation, protection of these plants should be enforced using strict implementations of legislations and policies, including consulted literature studies to change the current negative narratives and practices.
Identified study themes and challenges	**Study recommendations**
High demands of medicinal plants	While recognising the high demands of medicinal plants is most South African rural communities, medicinal plants gatherers should not only focus on the associated profits, they should not neglect the importance of applying proper conservation methods.
Illegal occupation and theft of medicinal plants	Focusing on cases of theft, the law should be enforced to those who are responsible for the commission of this crime. The local multisector partnerships should be developed strategies to collectively tackle this problem.
Contributing factors to illegal occupation and theft medicinal plants	As the trading of medicinal plants contribute to the general South African economy, responsible individuals should practice [All] proper conservation methods, this can enhance prevention nor losses of these plants and avoid future extinctions, which may negatively lead to losses of incomes.
Destruction of wild harvesting	Even though there are high demands of these plants, the medicinal plant gatherers should always use protective ways of harvesting to prevent future nor possible extinction.

Source: Researcher' illustrations (2022)

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