

## Therapeutic Applications of Medicinal Plants in Measles Management By the People of Dasht Mastung, Balochistan

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**Abstract**

Measles virus (MV) is a viral disease also known as rubeola, which affects about all humans worldwide. MV causes measles, a highly contagious acute infection that primarily affects children, multiply easily to others, and can be serious. It is a major disorder's signs and symptoms characterized by fever, cough, coryza, conjunctivitis, Koplik spots, and a maculopapular rash starting on the face. The study aims to record the medicinal uses of ethnobotanical plants for measles in the District Mastung Tehsil Dasht Quetta. The information was collected from 180 inhabitants of Tehsil Dasht through surveys and mainly focused on door-to-door

interviews, and the results were analyzed using various ethnobotanical indices, which consist of use report (UR), frequency citation (FC), use value (UV), relative frequency citation (RFC) and family importance value (FIV). In sum, 30 plant species belonging to 30 families were reported for their medicinal uses. Zingiberaceae was to be the dominant family found in terms of species in Tehsil Dasht with 3 species. The majority of plant parts used is their leaves, seeds, and roots. Each one of these plants was frequently used as a decoction and a little quantity was used as a smoke, powder, and infusion. Uppermost RFC value (0.06) was proofed for *Camellia sinensis* L. (green tea). I reported the highest use value for *Jasminum sambac* (Chambeli) (1). The highest use report was determined for *Allium sativum* (garlic or tom) (5) the uppermost FC value was recorded (12) for *Camellia sinensis* L. (green tea). Balochistan is loaded with medicinal plants, and these are still used for medicinal uses by the native peoples in their daily lives. This study makes it possible to analyze the research on medicinal plants used in all human health care, mostly in children's care in measles symptoms. The results of ethnobotanical include quantitative information on remedial plant diversity recognized for the first time in the district. The toxicity and phytochemical of the maximum-used plants should be analyzed for more pharmaceuticals.

**INTRODUCTION**

Measles virus (MV), often called rubeola virus, is a member of the Paramyxoviridae family's genus Morbillivirus. At least six structural proteins are encoded by its genome, which makes it an envelope, non-segmented, single-stranded, negative-sense RNA virus (Moss, 2017). Measles, a highly contagious acute infection that primarily affects

youngsters, is caused by MV. Serious complications can arise from measles, even though the majority of people recover (Perry et al., 1997-2001).

A virus causes measles, a disease that affects children. Measles was once fairly common, but it may be avoided with a vaccine. Measles can be dangerous for young children and is easily transmitted from one person to another. The disease kills 20,000 people year, primarily children, even though death rates are rising globally as more kids receive the vaccine. It results in a rash that is red and splotchy on the face, behind the ears, down on the chest, behind the back, and finally on the feet. Hem agglutinin (H) and fusion (F) proteins are the two types of surface projections that encapsulate the ribo nucleoprotein helix, which is composed of protein and RNA, in MV virions. Nucleoprotein (N) and H gene sequences are very varied and frequently used to differentiate between measles genotypes (Rota et al., 2002). F, H, L (big), M (matrix), N, and P are the six structural proteins of MV. RNA forms a complex with the N, large protein (L), and phosphor polymerase protein (P). Viral transcription and replication are controlled by the non-structural proteins C and V, which interact with cellular proteins (Moss, 2017). The F glycoprotein promotes viral cell-to-cell transmission, whereas the H glycoprotein helps the virus adhere to host cells. The measles virus envelope does not include neuraminidase, in contrast to several paramyxoviruses (Najjar et al., 2014).

Measles is a global disease, and the wild type virus only naturally infects humans, albeit monkeys can also contract it (Kempe et al., 1965). In the absence of immunization, measles outbreaks that last three to four months happen every two to five years (Fine et al., 1982). According to (Moss, 2017; Fine et al., 1982) annual outbreaks in temperate regions usually occur in late winter or early spring and are driven by social and meteorological factors as well as population density in locations such as schools. The frequency of measles has been considerably decreased in nations

where vaccination is widely available (Clements et al., 1992). Without epithelial cells as the main targets, dendritic cells are involved in the early infection in the respiratory tract, most likely through a mechanism that is dependent on CD150. Therefore, nebulized viral exposure on the tonsils or adenoids alone does not cause infection, which happens only after the development of MV viremia (Andres et al., 2003; Lemon et al., 2011). Similar to HIV, MV can enter cells using a "Trojan horse strategy," in which MHC class II+ CD11c+ dendritic cells transport the virus from the airway lumen to lymph nodes, where it is transferred to lymphocytes to start an infection.

According to (Sartwell, 1966), the incubation period for measles is roughly 10 days before to fever and 14 days prior to rash. The prodromal phase is when viremia rises, and when viremia decreases, symptoms show up.

According to (Laksono et al., 2016), multinucleated giant cells are frequently seen in lymphoid organs and tissues, which are major sites of viral replication, prior to the beginning of rash. Additionally, MV extends to the skin, trachea, tongue, and buccal mucosa, nose, and sub mucosal tissues. While lymphocytes frequently undergo turnover, the virus prefers to stay in epithelial cells (Ludlow et al., 2010). For at least three months following the start of the rash, measles RNA can be found in blood, urine, and nasopharyngeal samples, suggesting a sluggish clearance during convalescence (Riddell et al., 2007).

Measles RNA can be found in blood, urine, and nasopharyngeal mucosa for months after a rash, making it challenging to define the contagious period. However, infectiousness increases when the virus replicates in the upper respiratory tract (Riddell et al., 2007; Laksono et al., 2018). According to (Laksono et al., 2018), MV is spread by respiratory droplets and tiny particle aerosols that linger in the atmosphere for hours. From four days prior to the rash's development to four days following its appearance, the incubation period lasts roughly 10–14 days (Sartwell et al., 1966). Transmission is

facilitated by high viremia levels during severe coughing and coryza (Moss, 2017). Since measles does not generate latent or persistent illnesses and does not have animal reservoirs, it is extremely contagious and requires continuous transmission chains to persist (Moss & Strubel, 2011). Measles outbreaks occur seasonally, mostly during the winter, and are impacted by birth rates, congested indoor spaces, and school schedules, all of which have an effect on epidemic cycles (Fine et al., 1982; Ferrari et al., 2008). Measles transmission among vaccinated individuals has been observed recently, primarily as a result of immune system anomalies and falling vaccination coverage (messling et al., 2006; Phadke et al., 2016).

After roughly 10–14 days of incubation, symptoms include cough, coryza, conjunctivitis, and fever up to 40°C. Pathognomonic Koplik spots, which manifest as bluish-white lesions on a crimson base in the oral mucosa, close to the first molar, and possibly on the soft palate and vaginal mucosa, start to emerge one day prior to the rash and last for two to three days (Suringa et al., 1970; Koplik, 1962). Particularly in undernourished youngsters, the rash lasts 3–7 days and occasionally develops fine scaling after the first symptoms, which resemble other respiratory infections, worsen within 24–48 hours (Robbins, 1962) & (Morley, 1974). The cough may last for ten days, and the rash begins on the face and moves downward. Pharyngodynia, headache, abdominal pain, photophobia, and photophobia brought on by iridocyclitis, and moderate lymphadenopathy are additional symptoms. These indicators serve as the basis for a clinical diagnosis.

It is typically simple to identify classic measles, which is characterized by cough, coryza, conjunctivitis, Koplik spots, and a maculopapular rash that begins on the face. However, in the post-vaccine era, when clinical experience with the disease is less prevalent, laboratory confirmation is helpful for atypical cases, such as those without a rash or in individuals with impaired immune systems (Moss, 2017).

There are several measles vaccines available, with mono component vaccines being utilized in Russia and the majority of African nations. While the quadrivalent MMRV (measles, mumps, rubella) vaccination is available in the United States, it has a higher risk of febrile convulsions but is similarly safe and immunogenic to the combined MMR (measles, mumps, rubella) vaccine, which is used in North America and Europe (Demicheli et al., 2013). All vaccines produce protective immunity through attenuated viral vaccines. While the CDC in the US suggests the first dose at 12–15 months and the second at 4–6 years, the WHO suggests the first dose at 12 months and the second at 15–18 months (Bowes, 2016). The first dose may be administered at 9 months or even 6 months for displaced populations or children with HIV in some circumstances, such as endemic areas or during epidemics.

Medicinal plants were vital to healing before the development of contemporary medications. Medicinal plants are the foundation of traditional medicine, which is used by about 80% of the world's population in less developed nations. This means that more than 3.3 billion individuals use medicinal herbs on a regular basis (Davidson, 2000). Traditional medical knowledge is unique to almost 2000 ethnic group's worldwide (Liu et al., 2009). Iran is home to numerous indigenous tribes with extensive knowledge of medicinal herbs, despite its varied climates and geographical regions. Because of its isolation from neighboring towns, Alamut, a historically significant region, mostly depends on local medical expertise and medicinal plants. Because they offer vital ecosystem services, medicinal plants are becoming more and more popular. Since the beginning of time, they have been essential to human existence as food, clothing, shelter, and fuel. Early medicinal plant sciences were created by ancient societies such as Egypt, Greece, India, and China (Hamilton, 2004).

Additionally, the use of plants for therapeutic purposes has a long history in Persia (Kebriaee, 2003). Pharmaceuticals and cosmetics use more than 50,000 plant

species, and in recent decades, the demand for plants derived from wildlife has increased by 8–15% yearly (Huang, 2011; Rafieian, 2012 & Verma & Singh, 2008). Medicinal plants come in a variety of forms, including seeds, roots, leaves, fruits, and other parts, and contain active chemicals that have therapeutic benefits (Rasool, 2012; Jack, 1997). These substances work in concert to enhance therapeutic results and stop the onset of disease. The use of herbal medications has grown in popularity due to worries about the toxicity and negative effects of conventional medications (Rasool, 2012).

Plants have been used as medicine for almost 60,000 years (Solecki & Shanidar, 1975). The use of therapeutic plants is documented in ancient manuscripts from Egypt, Greece, China, and India (Ang-Lee et al., 2011). The usage of plants by early people was instinctual, and as time went on, scientific awareness of their therapeutic benefits developed. One of the earliest documented accounts of medicinal plants can be found on the roughly 5000-year-old Sumerian clay slab from Nagpur (Qiu, 2007). Among the first to record their use were the Greeks, Chinese, and Egyptians (Schippman et al., 2006). Dioscorides' "De Materia Medica," a fundamental work that describes 600 medicinal plants, was one of the major contributions made to the discipline by Greek scholars such as Hippocrates, Aristotle, and Theophrastus (Lindberg & Bertelsen 1995; Zargari, 1992).

Traditional medicinal plants are defined by the WHO as natural plant materials that are used to cure illnesses with little to no industrial processing (Tilburt & Kaptchuk, 2008). Due to its natural qualities and lower risk of consequences than contemporary medications, traditional herbal treatment has been utilized for thousands of years (Wichtl, 2004). Since ancient writings like the Ebers Papyrus (1500 BC) describe medicinal plants, the history of herbal medicine and early medical history are related. In Asia, Africa, and Latin America, traditional medicine is still widely practiced, and it is

becoming more and more well-liked as an alternative or complementary therapy in developed nations. The NIH classifies it as complementary and alternative medicine (CAM) in the US. Medicinal plants are essential to Tibetan medicine, Indian Ayurveda, and traditional Chinese medicine, which are currently the most popular (WJH, 2011). Given that there are over half a million plant species in the globe, the majority of which have not yet been investigated for their potential medical benefits, medicinal herbs have a bright future. Research into the therapeutic properties of these plants, both present and future, may have a big influence on how diseases are treated (Singh, 2015).

Despite the lengthy history of employing medicinal plants, there are a number of disadvantages to treating patients using whole plants or their raw ingredients (Helberstein, 2005). These include climate-related changes in the components of the plant, the emergence of synergistic chemicals that have negative effects, and variations in bioactivity brought on by differences in the raw material preparation, accumulation, and storage. As a result, rather than using entire plants, the tendency is shifting toward the isolation of chemicals and the use of pure molecules with bioactivity. With the ability to easily examine therapeutic effects and determine hazardous levels to control the quality of therapeutic formulations, this approach is in line with the current process of identifying natural pharmaceuticals (Zhang, 2011).

As chemistry advanced, it became possible to isolate, purify, and identify plant chemicals, which paved the way for the creation of herbal medicines. Due to the intricacy of the compounds, it used to take weeks, months, or even years to discover the structures of active compounds from plant materials (Shakya et al., 2012). However, bioassay-guided fractionation and the classification of compounds that are extremely limited in their organisms of origin have been greatly accelerated by the development of precision instruments such as nuclear magnetic resonance (NMR), liquid

chromatography-mass spectrometry (LC/MS), and high-performance liquid chromatography (HPLC/MS) (Schroeder & Gronquist, 2006).

Even though studies on medicinal plants have been successful in recent decades, there are still a number of obstacles to overcome in the future. Concerns about contamination, including heavy metal pollution, standardization of raw materials, and the quality of herbal products are still major difficulties (Yadav et al., 2014). Enhancing the amount and quality of bioactive components is crucial for the manufacturing of herbal medications. The study of a region's plants and their practical applications using the customs and knowledge of the local population is known as Ethnobotany. In order to document the practical uses of local flora for various elements of life, including plants as medicines, meals, intoxicants, and textiles, an ethno botanist works hard.(Kannell, 2001) Often called the "father of Ethnobotany," Richard Evans Schulte

(Kochhar, 2016) provided the following explanation of the discipline: The study of plants used by prehistoric tribes around the world is known as Ethnobotany.(Soejarto et al., 2006)The field of Ethnobotany has evolved since Schulte's time, moving beyond only learning about Ethnobotany to include applying it to contemporary society, mostly in the form of medications. In Ethnobotany, concerns include benefit-sharing plans and intellectual property rights.

Combining the terms "ethno" (the study of people) and "botany" (the study of plants), Ethnobotany examines how humans and plants interact. As a subfield of Ethnobiology, this multidisciplinary study studies how people utilize, manage, and perceive plants in human civilizations. It encompasses a broad range of plant applications, such as food, medicine, cosmetics, dyeing, construction materials, tools, and divination.

Since plants are crucial in controlling atmospheric gases and transforming sunlight into the nutritional energy that supports life, the interaction between humans

and plants is extremely important. Indigenous peoples are vital resources for conserving and using traditional plant knowledge, especially in contemporary medicine, because of their vast understanding of medicinal plants.

The rapidly growing discipline of Ethnobotany draws people with a wide range of interests and academic backgrounds. Its main objective is frequently to evaluate the economic potential of different plants, even if it is still strongly related to economic botany. The field has a romantic charm that is reminiscent of explorers' searches for "gold" in the form of plants or animals that might yield life-saving medications, particularly for severe illnesses like cancer and AIDS. Advances in the field of plant ethno medicine finding materials that can be subjected to suitable misdirected assays for chemical activity analysis can be made easier by advancements in plant ethno medicine. Human health suffers as a result of the underutilization of this approach to drug discovery. As a result, investigating novel approaches to drug discovery is crucial.

Modern Ethnobotany requires a variety of skills, including anthropological knowledge to comprehend how different cultures view plants, botanical expertise to identify and preserve plant specimens, and linguistic proficiency to accurately transcribe local terms and comprehend native morphology, syntax, and semantics. Native healers are frequently reluctant to impart their wisdom to non-natives.

The botanist John William Hershberger initially introduced the concept of Ethnobotany in the early 1900s.(Ponman et al., 2012) Although Hershberger conducted a great deal of ethnobotanical study, especially in places like Mexico and North Africa, Pennsylvania and Scandinavia(Ponman et al., 2012) Ethnobotany did not get widespread recognition until Richard Evans Schulte started making expeditions into the Amazon. (Mazal, 2018) However, Ethnobotany is believed to have its roots far earlier, in the first century AD, when Pedanius Dioscorides, a Greek physician, produced *De Materia Medica*, a comprehensive botanical work that described the culinary and medicinal uses of "over

600 Mediterranean plants.(Kannell ,2018) According to historians, Dioscorides frequently traveled around the Roman Empire, visiting places like "Greece, Crete, Egypt, and Petra," and gained extensive knowledge of the native flora and its beneficial qualities After Ethnobotany led to the discovery of the New World, European botanical knowledge significantly increased. The main cause of this increase in knowledge is the significant import of new plants from the Americas, which included crops like tomatoes, avocados, peanuts, and potatoes. A neighboring Iroquois tribe taught French explorer Jacques Cartier how to treat scurvy by making a tea from the needles of a coniferous tree, most likely a spruce (Fatur, 2020).

Ethnobotanical research was frequently associated with monasticism during the middle Ages. The majority of botanical knowledge, however, was preserved in gardens, such as the physical gardens that were affixed to medical facilities and places of worship. The anthropological component was not examined as a contemporary anthropologist may approach Ethnobotany today, and it was viewed in terms of practical applications for culinary and medicinal objectives (Han, 2015).

Measles is a fatal virus that affects susceptible children worldwide, many of whom lack access to medical care. According to estimates from the World Health Organization, measles affects over 20 million people year worldwide, with approximately 17 million of those cases being in children (WHO, 2003).Unfortunately, it has been stated that measles infections claim the lives of almost 600 youngsters every day. Thus, measles remains a major cause of death for young children, particularly in underdeveloped nations (Strebel et al., 2003). An estimated 242,000 people perished from the illness in 2006 alone, frequently as a result of subsequent complications including encephalitis, pneumonia, and diarrhea. A fever that lasts for a few days is the first sign of measles, which is followed by conjunctivitis (pink eyes), coughing, and runny nose. The face and upper neck are the first places where a rash

appears, and then it moves down the torso, arms, hands, legs, and feet. Even while measles can be regarded to have the ability to return to normal, the chance of consequences from some kinds of measles is much higher and unthinkable if left untreated. Measles has no known cure or therapy (Oguz et al., 2002). It is recommended that children remain at home and not attend school until their health professional gives the all-clear. According to the aforementioned, looking for recognized medicinal plant species that have strong anti-disease properties is especially fruitful. Plants have always been used by humans in one form or another. According to (Magbagbeola & Akinwande, 2006) they include a variety of physiologically active chemicals, the majority of which have therapeutic effects. Plants have long been used to treat ailments; this practice dates back to the beginning of human history (Grabley & Thiericke, 1999). There have been several statements regarding the Nigerian flora's potential as a legitimate source of medications and other treatments (Oliver-Bever, 1960; Sonibare et al., 2007; Sonibare and Gbile, 2008).

Maasai pastoralists' use of traditional medicines and food habits demonstrates how indigenous knowledge may be used to treat diseases like measles. Using milk, soup, and teas, the Maasai frequently include particular plants in the diets of both healthy and ill children. This method integrates medical and nutritional practices, highlighting the significance of recording these treatments as traditional knowledge is being lost as a result of socioeconomic shifts.

Measles continues to be a severe and extremely contagious pediatric illness that kills millions of people annually all over the world. After entering the body through the respiratory system, the virus infects several tissues and immune cells before spreading throughout the body. Despite the disease's severity, there are currently few effective therapy options available; the only one that shows some promise is high-dose vitamin A. Although several plants from East Africa have shown anti-measles virus activity,

more investigation is required to fully understand these results. The purpose of this study is to assess the Maasai's diet-based practices for preserving children's health and their measles management strategies, highlighting the possible benefits of these traditions approaches to general health, this study attempts to assess the Maasai's measles management strategies and diet-based practices for preserving child health.

Ancient writings including the Atharva Veda, Rig Veda, Charak Samhita, and Sushruta Samhita all mention India's long history of using herbal therapy. Because of the negative effects and high expense of contemporary synthetic medications, the usage of medicinal plants has grown dramatically in recent years (Sheikh, 2017). As a result of this change, medicinal plants now make up over 25% of contemporary medications. However, because to a lack of research and recording. Our understanding of traditional and ethnic medicinal plants is still lacking (Farnsworth, 2002).

The Food and Drug Administration (FDA) has only authorized about 1200 new medications since the 1950s (sheikh, 2017). Herbal medicine's use has expanded globally, particularly in developing nations; as a result of this scarcity and its rising popularity (Humber, 2002). There are over 145 tribal communities in northeastern India, which is renowned for its high biodiversity and cultural variety. These communities use about 1350 plant species for medicinal purposes (Ali, Das 2003; Dutta, Dutta 2005).

India's rural and ethnic populations have a wealth of knowledge about medicinal plants, which are frequently utilized to treat common illnesses. This information, which is abundant in bioactive substances with a range of pharmacological effects, is typically transmitted orally from one generation to the next. However, the preservation of this priceless information is in danger due to the migration of younger generations (Kunwar et al., 2016).

Therefore, it is crucial to record indigenous medical knowledge in order to keep it alive. The significance of conserving and researching these customs is underscored

by the Northeastern region, which is a hotspot for biodiversity.

According to (Awan et al., 2008), the usage of medicinal plant-based therapies is becoming more and more common. Herbal medicine is frequently chosen over allopathic treatment in rural regions (Birjees et al., 2021). Allopathic medications might have adverse consequences if taken excessively, despite their effectiveness and speedy recovery. Because they are readily available, reasonably priced, and have few adverse effects, herbal treatments are preferred (ishtiqa et al., 2021).

Infectious illnesses are a major cause of death in tropical areas (Musa et al., 2015). The effectiveness of traditional therapies has decreased due to the growth of drug-resistant diseases, especially in poorer nations. The largest organ in the body is the skin. Is susceptible to a number of problems, including sunburn, contact dermatitis, diaper rash, shingles, and hives, wounds, boils, acne, and general skin conditions. These illnesses have the potential to significantly affect general health and exacerbate mental health issues (Picardi et al., 2013). All ages are impacted by skin conditions, which make up a sizable portion of occupational illnesses (Abbasi et al., 2010). They have a significant worldwide impact, are brought on by a variety of infections, and have observable coetaneous signs.

Skin conditions are the 18th most common cause of health issues globally, according to the Global Burden of Disease (GBD) 2013 report (Aldeen et al., 2020) (Roderick et al., 2010). In order to lessen their effects and safeguard human health, skin problems must be treated. Two primary medical techniques are as follows: both conventional and traditional medicine. Various medications are used in conventional medicine to address the symptoms of skin diseases (Tabsum & Hamdani 2014) but there are worries about their high cost and possible adverse effects. The search for alternative alternatives is also prompted by problems with chemical product resistance and allergies (Priya et al., 2002).

Because they are readily available, secure, and reasonably priced, natural medications made from plants are growing in popularity. Skin infections must be treated with traditional medicine, especially with the use of botanicals. Plants are utilized to treat skin conditions in various nations, greatly expanding access to basic medical treatment (De wey at el., 2013). Depending on the reason; many modern therapies are available for skin conditions. Antibiotics are used to treat bacterial and fungal infections (Yang et al., 2014). However, some patients turn to herbal treatment as an alternative due to the disadvantages of current therapies, which include allergic reactions, antibiotic resistance, and expensive costs.

According to ethno medical research, herbal medicines can effectively treat and control skin conditions while providing advantages including cost and few side effects. Particularly in poor nations where local communities frequently rely on traditional medicine, medicinal plants are essential for treating dermatological disorders (Gebre et al., 2006; Shaika et al., 2006) (Van & Gorelik, 2017). The use of medical plants is currently being promoted by Pakistan's Ministry of Public Health, and the World Health Organization places a strong emphasis on recording medicinal plant knowledge worldwide (Mahwasane et al., 2013; Choudhary et al., 2011).

Many medicinal plants are known around the world for their ability to effectively cure skin conditions, despite the fact that there aren't many publications on the use of therapeutic flora for skin care in Pakistan (Abbasi et al., 2010). There has been no systematic study that focuses on skin issues in the tribal areas of Northern Pakistan (Ahmed et al., 2015; Yaseen et al., 2015), despite ethnobotanical literature mentioning the medicinal use of plants for various maladies in Pakistan (Mughal et al., 2013).

#### **MATERIALS AND METHODS**

The data was gathered through semi-structured interviews, quick review approach, questionnaire, free listening and own information. Results were analyzed using

quantitative indicators of use report (UR), use value (UV), frequency citation (FC) and relative frequency citation (RFC) was calculated for the therapeutic plants included in the study.

## STUDY AREA

The recent research was conducted in single vicinity of province Balochistan in district Mastung Tehsil Dasht.

## DISTRICT MASTUNG TEHSIL DASHT

### GEO-ETHNOGRAPHICAL OVERVIEW

Mastung district is located in northwest Balochistan. The district has an area of 5,620 square kilometers (2,170 square miles). Mastung District has a population of approximately 200,000 people. Tehsil Dasht is a subdivision of the Mastung district in Balochistan's Quetta valley, around 20 kilometers (13 miles) southwest of Quetta. It shares a boundary with the districts of Quetta to the north and Bolan to the east. Tehsil Dasht has an area of about 1,200 square kilometers (463 square miles). Tehsil Dasht is located in a valley surrounded by mountains, lakes, and gardens. The most prevalent trees found in Dasht are apple, peach, cherry, almond, and apricot. These plants are often grown in gardens.

The Climate of Dasht has a semi-arid, with cold winters and hot summer's warmth. Summer begins from May and ends on until early September with standard warmth variety from 24-26°C (75-79°F). Autumn begins in mid-September and goes on until mid-November with normal high temperature in the 13-18 °C (55-64 °F) range (Anon, 1997). Winters begin in not on time November and ending in late February with normal hotness near 4-6°C (38-41°F). Disparate further easterly parts of Pakistan; Quetta does not have a torrential rain time of year of heavy rainfall. Highest rainfall throughout 24 hours in Quetta Tehsil Dasht is 133 millimeters (4.4 in) which was recorded on 17 December 2000, highest rainfall in monthly 232.4 millimeters (9.15 in)

was proofed in march 1982 which was the highest twelve-monthly rainfall,949.8millimeters (37.39 in) in the wintry weather, snow has turn into stop variable (December to February)

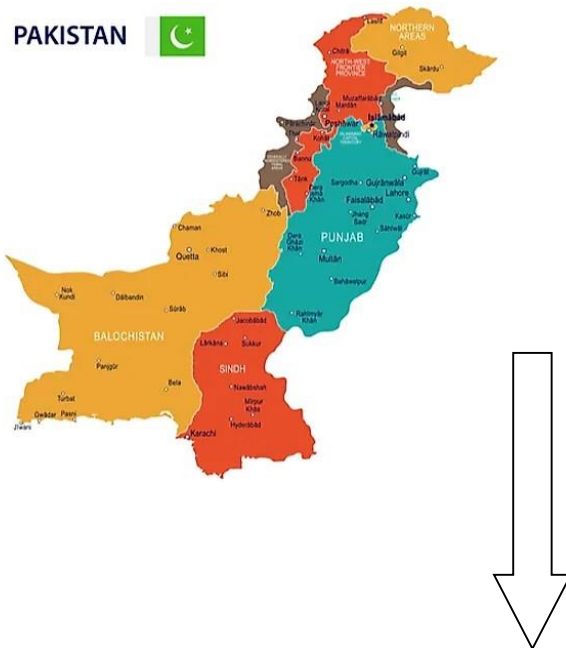
The population of Tehsil Dasht is around 50,000 people. The population of Tehsil Dasht is typically composed of various ethnic groups; these groups may have distinct language. The most common language brahui is used .we found a large population of brahui in the Tehsil. Some tribal people annually migrate during winter season with their families toward sibi (kachi Bolan district) .migration starts in October and continue till the end of November (Anon, 1997). The migrants return back to the month of April. The Tehsil Dasht has few infrastructures, with few schools, and healthcare facilities.

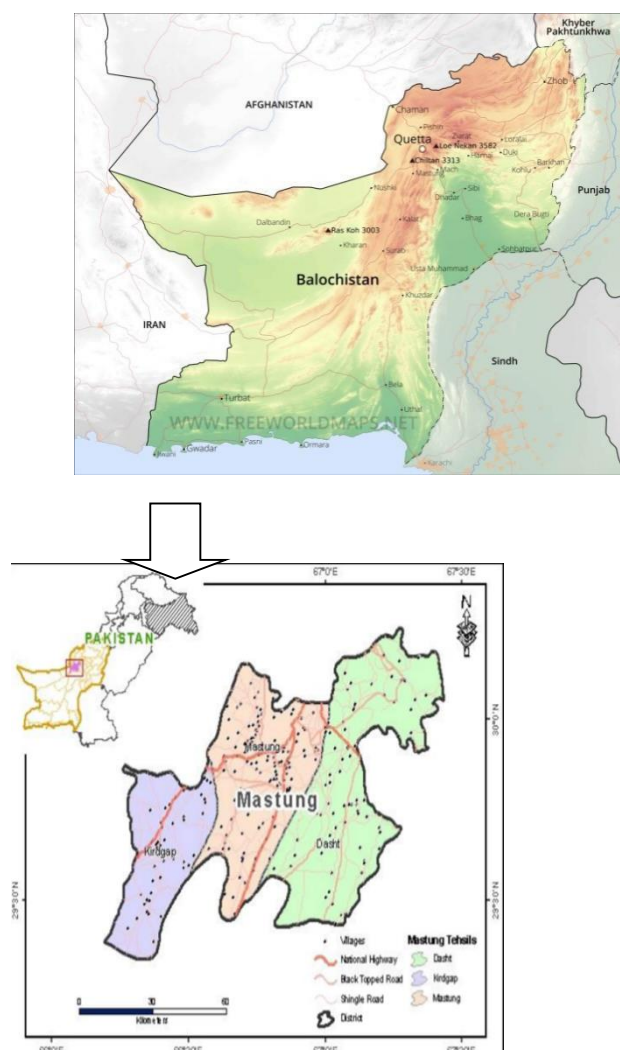
#### **SOCIO-ECONOMIC CONDITIONS OF THE AREA**

Dasht is one of the poorest districts in Balochistan with extreme level of population living there. The Tehsil dasht has been composed with diverse flora such as great number of medicinal plants in the mountains. The villagers of the area are still dependent on medicinal plants for their health care. I had examined the different types of plants and trees that grow in dasht and their Impacts for the treatment of measles. Agriculture is the common earning of the people in the region. Commonly 80% of the population of Tehsil Dasht depends on agriculture. Vital cultivated plants are wheat, onion, tomato, potato and other fruits and vegetables. Some of the natives collect medicinal plants from mountains and sell them to the cure of different diseases. The area is also rich in mineral resources.

The climate temperature is suitable for valley cultivation of apple, peaches, almonds, and pomegranates. Barley wheat and corn are ordinary crops. In Tehsil dasht there are many amounts of enormous size orchards, formed different types of fruits mostly almonds, grapes, and apple etc. Tehsil dasht is also famous for high reliability

of dry fruits. The surrounding mountain reefs provide a unique and diverse habitat for various types of plants and animals. Tehsil Dasht is famous for its top-grade dry fruits, especially almond, and pistachio. The area is mix of diverse ethnic groups and languages.





**FIG 1 MAP OF PAKISTAN, BALOCHISTAN AND DISTRICT MASTUNG TEHSIL DASHT FIELD INTERVIEWS**

Ethnobotanical data was assembling through free listing interviews with randomly selected insiders and field interviews with key insiders selected after free listing. (Ghorbani et al., 2011).questionnaire was mainly focused on door-to-door surveys means visiting households to gather data on demographics, livelihoods, and socio-economic conditions. The interviews were gathered using the local languages that are Urdu, and brahui. For the ethnomedicinal information, a total of 180 residents of the area were interviewed which including school teachers, housewife's, and students.120 women, 35 men, 25 traditional herbalists were interviewed of different age

groups ,unmarried, married, also adults. The residents were divided into three ages' groups for example 30-40, 50-60, and 61-70 years old. The interviews was together different site of the dasht including Cumbaila, moriv, isplingi, moza hassani, umar dhore, spezand, pingav.

#### COLLECTION, IDENTIFICATION AND DEPOSITION OF MEDICINAL PLANTS

The plants were gathered for the cure of measles disease in during (2022-2024) in Tehsil dasht covering almost all the season of the year and from in the mountains including koi murdar, koi linjo, koi parri, and koi maharan and koi apursi. The Information was gathered about therapeutic plants by native peoples of Tehsil Dasht. Information on local names, therapeutic purpose, herbal parts as pharmacological cause and form of preparation were documented and obtainable in fine points in table 4.1

#### QUANTITATIVE ANALYSIS OF ETHNOBOTANICAL RESULTS

Quantitative data was collected and analyzed using quantitative metrics and indices i.e. Use value (UV), Use report (UR), Family importance value (FIV), Frequency citation (FC), and Relative frequency citation (RFC).

**USE VALUE (UV)**

Use value (UV) was gained by the following formula proposed by (Tardio and pardo-santayana a, 2008) and (Savikin et al., 2013). UV is truly variation of the use value (UV).this value was calculated with minute variation. It quantify the all good estimate all the potential uses of plants devoid of consider its RFC. It also gives us the qualified significance of a species, allowing for the amount of uses mentioned by an individual's for a particular uncultivated medicinal plants species. It was considered with the following formula:

$$UV = \sum U / N$$

'UV' represented the amount of medicinal uses cited for a specific plant species by each informant, while 'N' denotes the total number of informants contributing to the documentation. UV is an index ranging from 0 to 1 where high UV values near (1) show a large number of reported uses for a species low UV values near (0) show few or no reported uses. However, UV does not distinguished between single and multiple uses of species, providing only a quantitative measure of use frequency.

**USE REPORT**

Use report (UR) is documented the number of species. All the people calculate the total uses of species. Calculate the number of peoples which declare each use type for the species and the overall of all uses in each-category (prance et al, 1987).

**FREQUENCY CITATION (FC) AND RELATIVE FREQUENCY CITATION (RFC)**

That was used to verify FC of medicinal plants that was use;  $F=C$  (Number of times a particular variety was mentioned/total number of times that all variety were mentioned)  $\times 100$  and the relative frequency citation (RFC) index was finished (Prado-de Tradio Santayana, 2008) by use the following equation;

$$RFC = FC/N \quad (0 < RFC < 1)$$

The key is gain by dividing the number of inhabitants refers to useful species FC frequency or frequency of citation by the number of total inhabitants in the survey (N). The value of RFC range from 0 (when no one regard as to be plant as a valuable), (when all the inhabitants declare is as useful). the RFC index not believe the use-category into account (UR or use report is a single record for use of plant mentioned by an individual).

#### FIDELITY LEVEL (FL)

Using the formula as explained by fidelity level Friedman et al., (1986) to identified more than one plant species used to the cure of same group:

$$FL = (N_p / N \times 100).$$

N is the amount of informants' citing the species for any sickness wherever the N P is number of informants citing the use of plants for an exacting sickness. It recommends the objects which frequently being used to cure specific ailments types as show by the informants of the study.

#### FAMILY IMPORTANCE VALUE (FIV)

The FIV which categorize the consequence of plants families. Ethnobotany can be useful is an index of civilization significance to determine the biological value of plant taxon. Determine the FIV, (Totter and Logan, 1986; Heinrich et al 1998). We use this formula;

$$FIV = FC (\text{family}) / N \times 100$$

Wherever, FC is the quantity of inhabitants declares the family whereas N is the sum quantity of inhabitants takes part in the study. Family importance value (FIV) gives the general significance of the families of uncultivated species. It was quantify by attractive the percentage of inhabitants talk about the family.

## RESULTS AND DISCUSSION

### USES OF THE PLANTS AND DEMOGRAPHICS

In total 180 informants were questioned of the Tehsil Dasht Quetta. The inhabitants interviewed were different age's groups between the ages of 30-40, 50-60, and 61-70. The majority people belong to the age of 60 years old. The women had additional knowledge about traditional medication as compare to the men's. Mostly of the interviewers who take part within the research rely on plants and yield made from plants as part of conventional natural cure to treat measles disease. Total 30 species with local names, family names, their uses and parts of the plants used for remedial significance, use report (UR), use value (UV), frequency citation (FC), and relative frequency citation (RFC) are planned in table 4.1. the used families characterized in name of number of specie were Zingiberaceae (3species).and the other families used were Brassicaceae, solanceae, Rosaceae, Lamiaceae, Oleaceae (2 species each in table 4.1. the majority of plants part used are their leaves, seed, and root each one plants were frequently used as decoction and a little quantity were used as a smoke, infusion, powder.

Ethnobotanical plants play a vital role in care for the symptoms of measles. There are many plants are used to the cure of measles but 30 were discussed in this piece of writing historically, a single plant species have been used to treat numerous diseases for example; *Wrightia tinctoria* (Ingaphatrik, which is used to treat skin allergies, asthma, cough, and fever, due to medicinal properties), *Curcuma longa* (Haldi or turmeric, which help in skin conditions and respiratory issues improve ,decrease the high level of androgen, help in reduces ant oxidative stress, and also improve insulin level), *Olea europaea* (Zatoon or olive help in antioxidants and anti inflammatory compounds treat, decrease risk of cataracts, glaucoma, also reduce cough and asthma), *Zingiber officinale* ( ginger or Adrak ,treated digestive issues, help in reduced

respiratory problems, also used to pain relief), *Brassica juncea* ( Sarso, mustard, used to treat skin conditions, decrease antimicrobial properties, also help in anti-cancer properties). Uppermost RFC value (0.06) was proofed for *Camellia sinensis* L. (Green tea).The uppermost use value was reported for the (*Ociumum sanctum* L. Tulsi) (1).the uppermost use reported were determined for (*Allium sativum* garlic or tom) (5)the uppermost FC value were recorded (12) for *Camellia sinensis* L. (green tea),all are listed in table 4.1

This study illuminated that the largest medicinal plant family is Zingiberaceae the characteristics and value of this family. Zingiberaceae is one of significant families which contain a variety of beneficial species. The Zingiberaceae (zingiberales) is the most varied and common plant families in conditions of ethnomedicine and its medical rate is based on the skin conditions and fever reduction. The Zingiberaceae plant family is one of the medium- sized family with the monocots, contains approximately 1,600 species divide into 50-60 genera. Remedial plants have a significant importance in the socio-culture, religious and medical use in rustic and tribal life of the increasing countries around the world community apply between 50,000 to 80,000 flowering plants for medical use (Naguib, et al., 2011) aromatic and therapeutic plants, are identified to be used by 80% of the inhabitants for their medical therapeutic special effects as likely by WHO (WHO, 2008)

#### QUANTITATIVE ANALYSIS

##### USE VALUE (UV), USE REPORT (UR), AND RELATIVE FREQUENCY OF CITATION (RFC)

*Ociumum sanctum* L. was the highest use values (1), *Zingiber officinale* L. (0.75), *Nyctaginia noctiflora* (0.25), *Prunus dulcis* (0.8) *Allium sativum* (0.7), *Coriandrum sativum* (0.6), and *Cinnamomum verum* j.presl (0.5), the smallest amount use value were report for *Brassica juncea* L. (0.1).while the study approved out by (Pachiappan, et al 2017) *Zingiber officinale* have the highest use value to decrease measles certain

familiar plants and their bioactive extracts also play a crucial role in treating various ailments. The observed differences may be attributed to local vegetation in geo-climate of the area.

The highest Use report were calculated for *Crocus sativus*, *Allium sativum*, *Prunus dulcis*, (each 5) and smallest amount use report were calculated for 9 species (1 use report for each) whereas (Ahmed et al., 2021 ) commonly *Aloe barbadensis* reported the which is entirely diverse from the result.

The highest RFC values were reported for *Camellia sinensis* (L.) (0.06), and *Trigonella foenum-graecum*, *Crocus sativus*, *Brassica juncea* L, *Curcuma longa* L, *Olea europaea* L, (0.05) and least RFC *Myristica fragrans*, and *Aloe barbadensis* (0.01) (table 4.1). due the majority of peoples, these species are the most common used helpful plants, and they are also extensively used plants in Tehsil Dasht.

The highest FC was calculated for *Camellia sinensis* (15) and *Trigonella foenum-graecum*, *Num harmala*, *Olea europaea* L, *Brassica juncea* L, (10) the least FC was calculated for *Momordica charantia* L. 8 more species (1 FC). These species, in agreement to the study, are the definite species that the number of inhabitants mentioned.

#### INDIGENOUS KNOWLEDGE STUDY AREA OF TEHSIL DASHT

Majority of natives of the region are uneducated particularly in the rural areas of the Tehsil dasht and the earning basis of the locals are only crop growing and farm animals. Some of the natives collect medicinal plants and go to sell them. there is an enough traditional knowledge among the local herbalists, but they are typically reluctant to impart it to other community members. The current study was aimed to educate women about their indigenous knowledge of ethnobotanical plants in order to preserve the traditional knowledge of research region through written literature, document it, and exceed on it to the other communities all-inclusive. In the side vicinity

mostly women are aware of plants uses concerned with children’s disease and other women disorders but in town had not that enough knowledge about the medical plants, its extract and preparation. Promoting the sustainable use of natural flora and cultivating medicinal plants in the region can extensively improve the socioeconomic welfare of local inhabitants.

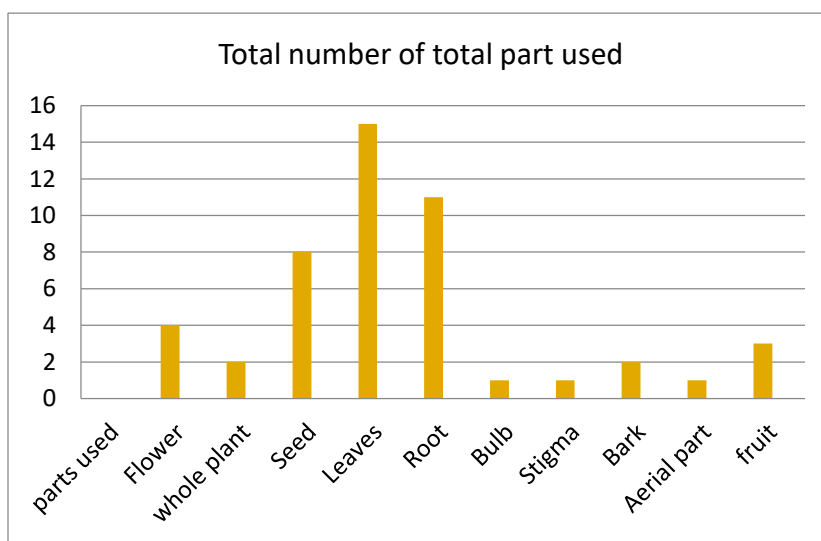


FIG. 2 PLANTS PARTS USED FOR MEASLES BY THE PEOPLE OF TEHSIL DASHT

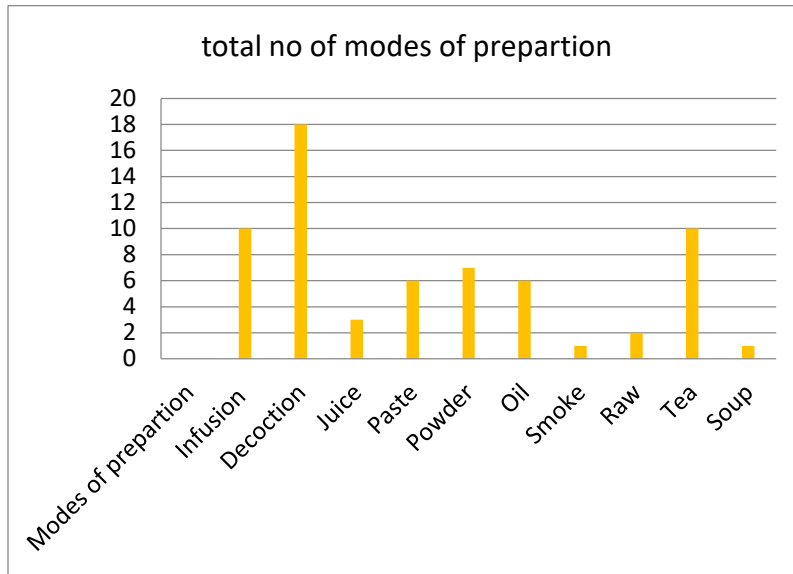


FIG. 3 TOTAL NO OF MODES OF PREPARATION FOR MEASLES IN TEHSIL DASHT

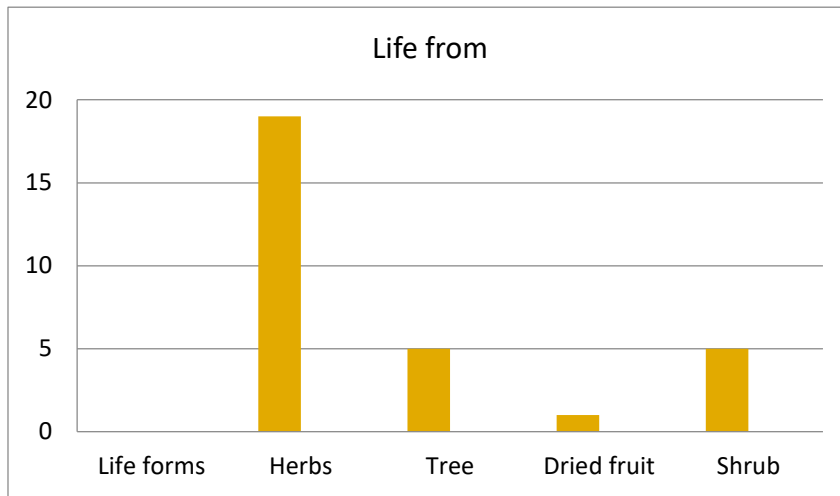
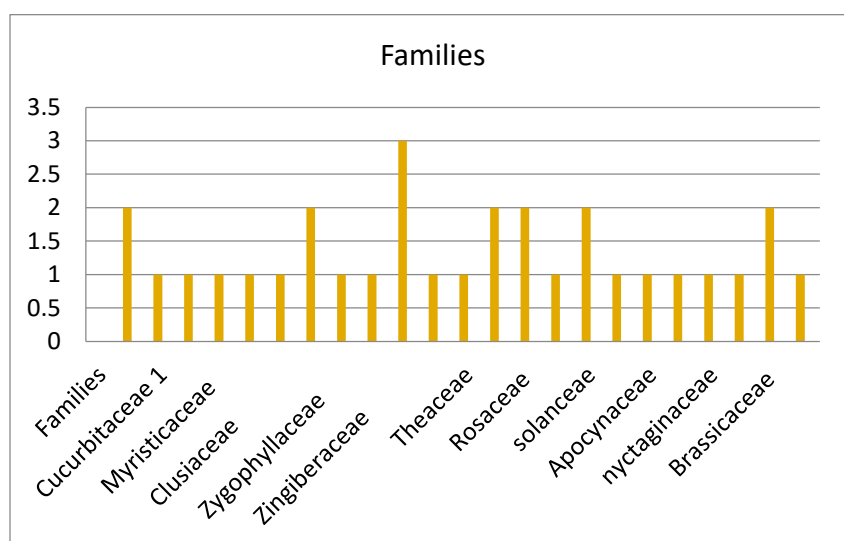


FIG. 4 LIFE FORMS OF PLANTS USED FOR MEASLES IN TEHSIL DASHT



**FIG. 5 FAMILIES OF PLANTS WHICH USED FOR MEASLES IN TEHSIL DASHT**

#### PLANTS AND DERIVED PRODUCTS REPORTED USED FOR MANAGING MEASLES SYMPTOMS

In the present reading of 60 plants species and traditional uses from diverse 30 local plants were reported. Their local name, family name, life form, their mode of preparation, and part of plants used for the medicinal cure against measles were point out. The whole plant of *Num harmala* has been used worldwide. Smoke of this plant traditionally very useful to the treatment of measles. Measles have been found in children's under the age of 5 years old highest risk group and measles symptoms usually build up within 7-14 days divided into two stages early symptoms (2-4 days) such as fever, cough, runny nose, red watery eyes (conjunctivitis) and loss of appetite. Stage two rash and advanced symptoms (4-7 days) include red, flat rash found on the face and spreads to the neck, legs, and arms. Fever peaks (often above 104°F/40°C), ear pain, diarrhea, vomiting. Similarly there are many plants which are used to care for measles or measles symptoms a few of them are;

Now the some remedial plants which can used for the treatment of measles and its symptoms;

## MEDICINAL PLANTS FOR MEASLES

### *TRIGONELLA FOENUM-GRAECUM*

Trigonella foenum-graecum is an annual plant family (Fabaceae,) usually known as Fenugreek .it is present worldwide as a semiarid crop. ingredients of fenugreek seeds include flavonoids, alkaloids, coumarins, vitamins, and saponins; the most prevalent alkaloid is trigonelline and coumarins. These materials are varying in biological significance in dry extract of medicinal plants. There is no clinical evidence so as to fenugreek has remedial goods. Frequently used in traditional drug, fenugreek can increase the risk of serious adverse effects, including allergic reactions. Now research studies, believed that medicinal plants have an effect and recover the measles disease. Fenugreek is estimated as another treatment. Red spots can be removed easily using a paste of fenugreek, and skin can be resumed. It is assumed that the remedial infusion of fenugreek have been usually used to care for antiviral, skin and wound healing and reduce fever in which suffering from measles.

### *ALLIUM SATIVUM* (GARLIC)

*Allium sativum* is a commonly known as garlic. It is an herb consumed universal as useful food and traditional medicine for the avoidance of infectious diseases while antique time. Its active organ sulfur compounds (OSCs) have been statement to improve an amount of viral diseases in pre-clinical and clinical explorations(Tudu et al., 2022) .The investigation of its dynamic ingredient initiates just recently Alliin (S-allyl-L-cysteine sulfoxide) it is the mainly rich sulfur compound there in fresh and dry garlic (Lawson, 1998). *Allium sativum* also hold non-sulfur ingredients including lectins, flavonoids (Quercetin and myricetin), polysaccharides (fructan), steroids, saponins, fatty acids , several enzymes, vitamins Garlic have been use by as an herbal drug to cure of different infectious diseases like cold/flu and other viral infections (Kun Silprasisit et al., 2011; Lissiman et al., 2014; Tsai et al., 1985).

### ***CROCUS SATIVUS* (SAFFRON)**

*Crocus sativus*, also known as autumn crocus or saffron crocus it is a flowering plant in the iris family Lridaceae. Human being development of saffron crocus and the use of saffron have suffered for further than 3,500 years and distance different traditions, continents, and evolutions. *Crocus sativus* is also useful to health principles, particularly in conventional Asian drug due to biologically active mostly alkaloids, carotenoids, flavonoids, anthocyanins, phenolic, saponins, and terpenoids (Butnariu et al., 2022). the stigma of Saffron's are broadly useful as an native pills crossways India. It gives out as an antiseptic, analgesic, and expectorant agent. Also, it is helpful against smallpox and a broad variety of stomach problems. The most accepted natural cosmetic in Indian and Iranian medication for enhancement of skin tone, and as a piece of folk phytopreparation, it's good for brightens of the skin and body (Archivio et al., 2017). Because an important therapeutic plant, it is a division of many alternative treatments and tradition tablets (Sheidai et al., 2018; Mohtashami et al., 2021). It is recognized that saffron was applied for the cure of about 91 physical conditions by diverse cultures.

### ***BRASSICA JUNCEA* (MUSTARD)**

*Brassica juncea* is a most important oil seed also contribute utmost in domestic cooked oils. It fit in to Brassicaceae family (Cruciferae) these plants are considered for their bioactive potential the plant exhibit anti-bacterial, anti-malarial. Their seeds are used to create oils, which are useful as a flavoring and in the cure of skin and ulcers the seeds are used in traditional drug to take care of a diversity of conditions, containing tumors, abscesses, colds, and stomach disorders. They have antibacterial, antifungal, and insecticidal effects, and are also ant hyperglycemic, and, antihyperlipidemic.

### ***CAMELLIA SINENSIS* (GREEN TEA)**

*Camellia sinensis* is a species of evergreen shrub family Theaceae. Common name is called tea plant. It has consumed traditionally worldwide as tea for its several health advantages (Brimson et al., (2023). Its foliage can be used to produce tea. This species is loaded in polyphenolic compounds and catechins. Catechins derivatives have exposed definite antiviral activity, experiential for derivatives transport moderate chain length, *Camellia sinensis* as well as falling redness and supporting your skins natural regeneration process. It is also used in a lot of cosmetics products such as moisturizer, anti-aging creams, sunscreens, and conditioner.

#### ***CURCUMA LONGA* (TURMERIC)**

Turmeric is a flowering plant inhabitant to tropical valleys and jungles. Traditionally, it has been used for centuries in a variety of applications according to its therapeutic properties such as antimicrobial, antiviral, and anticancer. Its bioactive compound, curcumin, shows signs of a wide range of helpful activities. Manufacture turmeric a valuable spice in Ayurvedic medicine. Curcuma which helps in reduces measles such as decrease fever soothes skin irritation and antiviral properties help combat measles virus.

#### ***OLEA EUROPAEA* (OLIVE)**

*Olea europaea* commonly known as olive also have so many other names. It's a tree with edible fruit, leaves and seeds .the fruit and leaves are occasionally uses as a drug. People most commonly use olive oil for various diseases including high cholesterol, measles, cancer, memory and thinking skills, migraine, and many other conditions, but there is no excellent scientific confirmation to support a lot of these other uses. *Olea europaea* leaf extract is a normal ingredient children a numerous of benefits for skin. Olive fruit may also be able to destroy microbes, such as bacteria and fungus Oleaceae is greatest grown in Asia and Malaysia particularly tropical and moderate areas of Asia (Perez et al., 2005). *Europaea* have been specified in traditional medicine. It has been

used to treat diabetes, hypertension, inflammation, diarrhea, respiratory and urinary tract infections, stomach and intestinal diseases, asthma, hemorrhoids, rheumatism, laxative, mouth cleanser, and as a vasodilator. (Hashmi et al., 2015)

#### ***ROSA DAMASCENE MILL (GULGOLAB)***

Rosa damascene, also famous as the damask rose, has several therapeutic uses, including: Skin care and can help in rehydrate skin, decrease acne. Rose flower water can also relieve nervousness and decrease stress Anti-epileptic: The vital oil of Rosa damascene may help care for against epileptic seizures. Rose necessary oil or liquid gold is luxurious yellow soft essential oil that is extracted by dissimilar commercial methods. Bulgaria, Turkey and Morocco are the major producers of rose important oil in the planet. Rose damascene also helps in reduce measles symptoms including decrease fever, cough, and liver disorders.

#### ***ALOE BARBADENSIS (ALOE VERA)***

Habitually, this remedial plant has been working to treat skin problems (burns, wounds, and anti-inflammatory processes). Furthermore, Aloe Vera has revealed other remedial properties including antiviral, anticancer, antioxidant, ant diabetic. Aloe Vera extract was found highly effective against the virus signifying that the extract affects early stages of disease. Aloe Vera may also be used to care for food to avoid food-borne viral infections. Aloe is used topically (applied to the skin) and verbally. Topical use of aloe is encouraged for acne, lichen planus a skin condition and an itchy rash on the skin or in mouth, oral sub mucous fibrosis, burning mouth syndrome, and induced skin toxicity.

***CORIANDRUM SATIVUM (DANIYA)***

*Coriandrum sativum* (coriander) family Apiaceae is a versatile plant utilized in traditional medication and culinary practice. Coriander contains bioactive compounds such as flavonoids, alkaloids, and phenolic acid. Its aerial parts and fruits are working for medicinal purposes. In traditional Persian medicine (TMP), coriander is considered to hold a cold and waterless temperament. Traditionally, its seeds were consumed for their medicinal properties, especially to relieve pain decrease inflammation. Historically, *Coriandrum* seed was one of the initial plant species working by humans for remedial purposes. Decoction of *Coriandrum* traditional remedies and scientific potential uses in native Sri Lankan medicine: it reduces high fever, redness and inflammation and viral infections. *Terminalia chebula*, a traditional medicinal plant, exhibits direct antiviral activity against sexually transmitted herpes simplex virus (HSV) (Paniagua et al., 2020).

**HERBAL DRUG PREPARATION METHODS**

Among herbal medicine preparation, (60% decoction with 18 species), (powder 23% with 7 species), (oil 20% with 6 species) and (33% infusion with 10 species) (fig.2) are extremely used in the region. The results which are extensive extend use of decoction oil and infusion agree with the results of (Gurdal and Kultur 2013; Ahmed et al., 2014). It is stated that using the preparation method was decoction oil powder and infusion. In the study, there are seven following internal application methods were noted: infusion, decoction, powder, oil, boiling, tea, extraction. Some direct uses of species were also documented but not mentioned in the table because that same species had also a process to prepare. Throughout the study various parts of plants were used, the leaves and roots are used commonly (36% of each) (fig.1). It was distinguished that the leaves are more accessible or available in nature and fairly further abundant as compared to other plant parts which may explain why they are used. The recurrent use

of the whole plant in the district may be recognized to the areas mountainous topography and low rainfall, which special treatment the growth of herbaceous plants and wild bushes (Bonet et al., 1999, Neves et al., 2009), accordingly, local inhabitants often yield the aerial parts of plants and usually use decoction and infusion method. Particularly, the herbaceous tendency is not only predominant in our study are but also a widespread ecological phenomenon globally (Ibrar et al., 2007 Jan et al., 2011).correspondingly (Ahmed et al., 2014) also originate that herbaceous plants are the existing life form and are commonly utilized in Pakistan chail valley (Qureshi, 2012) observed related tendency in Hingol national park, Balochistan, where whole plant stranded remedies are widely practiced (20.13%),followed by leaves (21.28%),). It was observed that yet when just one plant part e.g., leaf, flower, or fruit is needed local citizens often yield the entire plant instead of only the required part. This practice of entire plant gathering has harmfully impacted plant inhabitant's sizes. Native people utilize different plants components, including roots and leaves (36% ) seeds (26%), fruits (10%), flowers (13%), and further parts (Fig.1). the heavy reliance on leaves, roots, and seeds place additional pressure on the uncultivated inhabitants ability to survive. In difference fruits and flowers are the slightest utilized portions.

TABLE: 1 MEDICAL PLANTS USED FOR THE TREATMENT OF MEASLES DISEASE IN DISTRICT MASTUNG TEHSIL DASHT

S.No	Scientific Name	Common Name	Family	Life form	Part Used	Mode of Preparedness	Phytochemicals	Toxicity	References
1	<i>Aconitum chasmathum</i> staff ex Holmes.	Aconite,blue rocket	Ranunculaceae aconitum	Herb	Leaf	Decoction	Flavonoids, alkaloids, mesaconitine, hypaconitin, atisin.	Highly toxic	Malik et al.(2019)
2	<i>Adiantum capillus verneris</i> L.	Southern maidenhair Fern	Amaranthaceae	Perennial plant	Aerial part	Decoction of aerial parts is taken orally.	Flavonoids, phenolic acids, terpenoids, glycosides, alkaloids, saponins.	Non toxic	Shaheen et al.(2012)
3	<i>Aerva javanica</i> (burm.f) juss	Desert cotton	Amaranthaceae	Herb	Leaves	Roots are boiled in water and	Citral, geraniol, limonene, myrcene,	Non toxic	Tamang et al (2013)

						decoction given orally a day for 7-8 days	flavonoids, citronellal.			
4	<i>Aframomum melegueta</i> k.schum.	Guinea grains	Zingiberaceae	Herb	Seeds	Dried seeds used or added to coffee.	glycosides, flavonoids, terpenoids, phenolic acids, saponins.	Non toxic	Sonibare et al.(2009)	et
5	<i>Aphanamixis polystachya</i> (wal. L)R.parke	Pithraj tree	Meliaceae	Tree	Leaves & roots	Leaf and root decoction applied on affected body parts.	Alkaloids, flavonoids, terpenoids, phenolic acid, glycosides, steroids.	Toxic	Rahmatullah et al.(2009)	

6	<i>Argomone mexicana</i> L.	Mexican poppy	Papaveraceae	Shrub	Whole plant	Tea	Alkaloids, flavonoids, phenolic acids, terpenoids, saponins.	Toxic	Sonibare et al.(2009)
7	<i>Artemisia indica</i> willd.	Indian wormwood	Asteraceae	Shrub	Whole plant	Pest of plant is used	alkaloids, phenolic compound, terpenoids, glycosides.	Toxic	Sonibare et al.(2009)
8	<i>Azadirachta indica</i> A.juss	Indian lilac	Meliaceae	Tree	Bark leaves, seeds	Pest of leaves	limonoids, triterpenoids, flavonoids phenolic acids, alkaloids,	Toxic	Rahmatullah et al.(2010)

								glycosides, steroid's. Flavonoids, alkaloids, terpenoids, phenolic acids, lignans, glycosides, triterpenoids, phenolic aldehydes. Flavonoids, terpenoids, alkaloids, phenolic acids, essential oil.			
9	<i>Bambusa vulgaris</i> schradei j.cwendi	Bamboo	Poaceae	Tree	Leaves	Extract juice fresh bamboo leaves and drink 2-3 cups a day		Non toxic	Sonibare et al.(2009)	et	
10	<i>Butyrospermum paradoxum</i> (c, f.gaertn.)hepper	Shi butter tree	Sapotaceae	Tree	Leaf & bark	Leaf decoction / bark infusion		Non toxic	Sonibare et al.(2009)	et	
11	<i>Caesalpinia</i>	Gray nicker	Leguminosae	Small	Leaves	Extract juice		Toxic	Sonibare	et	

	<i>bonduc</i> (L)			tree		from fresh leaves & drink 2-3 times.	glycosides, flavonoids, phenolic acids, terpenoids, saponins, tannins.			al.(2009)
12	<i>Cannabis sativa</i> L.	Indian hemp & marijuana	Cannabaceae	Herb	Leaves & seeds	Powder ,tea extract	terpens, flavonoids, alkaloids, phenolic acids.	Non toxic	Misin et al.(2020)	
13	<i>Citrullus colocynthis</i> (L)schard	Colocynth,bitter apple	Cucurbitaceae	Perennial herb	Seeds	Boil the seed in water then drink the decoction 2-3times a day.	Cucurbitacins, flavonoids, phenolic acids, terpenoids, glycosides, saponins,	Toxic	Sonibare et al.(2009)	

								alkaloids.			
								Flavonoids,			
								alkaloids			
14	<i>Corchorus oiltorius</i> L.	Tossa jute	Tiliaceae	Shrub	Whole plant	Leaf soup & juice	terpenoids, glycosides, saponins, lignans, steroids.	Essential oils, flavonoids,	Non toxic	Sonibare et al.(2009)	et
15	<i>Cymbopogon jawarancusa</i> . (Jones) schult	Oil grass	Poaceae	Perennial herb	Aerial parts	Smoke of plant is useful	phenolic acids, terpenoids, glycosides, alkaloids.	Alkaloids, glycosides, flavonoids,	Non toxic	Rahmatullah et al.(2010)	
16	<i>Deinbollia pinnata</i> (poir) schum Ash &	Water willow or African pear	Sapindaceae	Small tree	Bark & fruit	Powder /juice	Alkaloids, glycosides, flavonoids,		Toxic	Sonibare et al.(2009)	et



								fatty acids, glycosides, saponins. Alkaloids, galycosides, saponins, flavonoids, phenolic acids, terpenoids. Alkaloids, flavonoids, terpenoids, glycosides, saponins, phenolic acids, tannins.			
19	<i>Elytraria marginate</i> vahl.	Stemless balsam	Acanthaceae	Herb	Whole plant	Leaf decoction		Toxic		Sonibare et al. (2009)	
20	<i>Fagonia indica</i> var.	Dhamasa	Zygophylaceae	Shrub	Aerial parts	Paste,tea		Non toxic		Sonibare et al.(2009)	
21	<i>Humbertia,</i>	Spanish centel	Brunelliceae	Herb	Root &	Root		Non		Abbasi et	

	<i>Bonplandiana,</i> <i>kunth.</i>					leaves	decoction			toxic	al.(2010)
22	<i>Lantana Camara</i> L.	Red sage, yellow sage	Verbenacea	Shrub	Leaves	Decoction	Alkaloids, phenols, flavonoids, glycosides, tannins, terpenoids. Terpenoids, phenolic acid, glycosides, saponins, alkaloids, flavonoids, fatty acids.	Toxic to humans and livestock.			Qasim.et al(2016)
23	<i>Laranthus</i> L.spp	Yellow berried mistletoe	Loranthaceae	Tree	Whole plant	Decoction		Toxic			Sonibare et al. (2009)
24	<i>Meiliaazedarch</i> <i>ch</i> L.	Chinaberry	Meliaceae	Tree	Leaf & Leaf seed	decoction	Triterpenoids, alkaloids,	Non toxic			Maqbool et al.(2019)

25	<i>Ocimum gratissimum</i> L.	Sweet basil	Labiatae	Perennial plant	Leaves	Decoction of leaves	flavonoids, tannins. Volatile oils, flavonoids, phenolic acids, terpenoids, glycosides, saponins, alkaloids.	Non toxic	Sonibare et al. (2009)
26	<i>Peperumiapellu cida</i> L.	Shlny pepper	bush Piperaceae	Herb	Whole plant	Leaf juice	Alkaloids, glycosides, saponins flavonoids, phenolic acids	Non toxic	Sonibare et al. (2009)
27	<i>Pinus roxburghii</i> Sarg.	Chir pine	Pinaceae	Tree	Gum	Steep the pine needles	Terpens, flavonoids,	Non toxic	Rauf et al. (2012)

						in hot water then drink the tea.	phenolic saponins, alkaloids, glycosides, lignans, volatile oil. Polysaccharides, flavonoids, Formation various				
28	<i>Plantago major</i> L.	Great plantain	Plantaginaceae	Herb	Leaves & seeds	dosage from (e.g. tea, capsule)	phenolic compound, tannins, saponins, terpenoids, lignans, resins.	Non toxic	Razzaq al.(2015)	et	
29	<i>Tamarixaphylla</i> (L).	Athel tamarisk	Tamaricaceae	Tree	Leaf	Drying and grinding the	Flavonoids, tannins,	Not highly	Jan. al(2022)	et	

30	<i>Vernonia amygdalina</i> del.	Bitter leaf	Asteraceae	Shrub	Leaves	leaves also bitter water	Leaf powder drink leaf	terpenoids, phenolic saponins, alkaloids, glycosides.	terpenoids, acids, Non toxic	to humans	Abbasi et al.(2013)
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TABLE: 2 MEDICAL PLANTS USED FOR THE TREATMENT OF MEASLES DISEASE IN DISTRICT MASTUNG TEHSIL DASHT

S.No	Scientific Name	Common Name	Family	Life form	Part Used	Mode of Preparedness	F	RFC	U	UV
							C		R	

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1	<i>Allium sativum</i> L.	Tom	Amaryllidaceae	Herb	Bulb	raw/tea/soup	7	0.0	5	0.7
								3		
2	<i>Aloe barbadensis</i> Mill.	Aloe Vera	Asphodelaceae	Herb	Leaves gel	Raw gel	2	0.0	1	0.5
								1		
3	<i>Bacopa monnieri</i> (L.) pennell	Bakam	plantaginaceae	Herb	Leaves/root	Infusion/decoction	5	0.0	3	0.6
								2		
4	<i>Brassica juncea</i> L.	Sarso	Brassicaceae	Herb	Seed	Oil	1	0.0	1	0.1
							0	5		
5	<i>Camellia sinensis</i> (L.)	Green tea	Theaceae	Shrub	Leaves	Tea	1	0.0	3	0.7
							2	6		5
6	<i>Cinnamomum verum</i> j.presl	Lawang	Lauraceae	Tree	Bark/leaves	Oil/decoction	2	0.0	1	0.5
								1		
7	<i>Coriandrum</i>	Daniya	Apiaceae	Herb	Seed/leaves	Decoction/infusion	3	0.0	2	0.6

	<i>sativum</i> L.						1			
8	<i>Crocus sativus</i> L.	Zafiran	Lridaceae	Herb	Stigma	Decoction/powder	9	0.0	5	0.5
9	<i>Curcuma longa</i> L.	Haldi	Zingiberaceae	Herb	root	Decoction/infusion/powder	9	0.0	2	0.2
	<i>Elettaria Cardamomum</i> L.	Elaeichi	Zingiberaceae	Herb	seed	Tea	6	0.0	2	0.3
10	<i>Jasminum sambac</i> Halbritter H.	Chambeli	Oleaceae	Herb	Flower	Infusion/decoction	2	0.0	1	0.5
11	<i>Juglans regia</i> L.	Akhroot	Juglandaceae	Tree	Leaves/bark	Oil/tea	4	0.0	1	0.2
12	<i>Momordica charantia</i> L.	Karela	Cucurbitaceae	Herb	Whole plant	Juice/paste	2	0.0	1	0.5
13							1			

	<i>Myristica</i>						2	0.0	2	0.5
14	<i>fragens</i> Houtt.	Jaiphal	Myristicaceae	Tree	Seed	Powder/infusion/oil	1			
15	<i>Num</i> <i>harmala</i> L.	Kisankoor	Zygophyllaceae	Herb	Whole plant	Smoke	1	0.0	4	0.4
16	<i>Nyctaginia</i> <i>noctiflora</i> L.	Pannerband	nyctaginaceae	Shrub	Root/leaves/seed	Powder/decoction	8	0.0	2	0.2
17	<i>Ocimum</i> <i>sanctum</i> L.	Tulsi	Lamiaceae	Shrub	Seed/powder	Tea/Juice	3	0.0	3	1
18	<i>Olea</i> <i>europaea</i> L.	Zatoon	Oleaceae	Tree	Leaves/fruit	Oil/decoction	1	0.0	3	0.3
19	<i>Oligomeris</i> <i>linifolia</i> (vahl) machbrick	Shootk	Resedaceae	Herb	Seed	Decoction/powder	3	0.0	1	0.3

20	<i>Prunus dulcis</i> Mill.	Badam	Rosaceae	Tree	Leaves	Oil/paste/tea	6	0.0	5	0.8
									3	
21	<i>Rosa damascene</i> mill.	Gulgolab	Rosaceae	shrub	flower	Decoction/infusion/powder	5	0.0	3	0.6
									2	
22	<i>Solanum melongena</i> L.	Wangar	Solanaceae	Perennial herb	Root/leaves/fruit	Decoction/infusion	3	0.0	1	1
									1	
23	<i>Taraxacum officinale</i> L.	dandelion	Fabaceae	Herb	Leaves/roots	Tea / decoction	2	0.0	2	1
									1	
24	<i>Thymus serpyllum</i> L.	Izbotak	Lamiaceae	Perennial herb	Aerial part/flower	Decoction/tea	7	0.0	2	0.2
									3	
25	<i>Trigonella foenum-graecum</i> L.	Gonjiko	Fabaceae	Herb	Leaves/root	Paste /infusion	1	0.0	2	0.2
							0	5		
26	<i>Ver</i>	Kokinar	Clusiaceae	Herb	Seed	Decoction/paste	4	0.0	3	0.7

	<i>somniferum</i>							2	5	
	L.									
27	<i>Vitis vinifera</i>	Kishmish	Vitaceae	Dried	Leaves/root	Infusion/decoction	5	0.0	1	0.2
	L.			fruit				2		
28	<i>Withania</i>	Asori	solanceae	Herb	Root/leaves	Decoction/paste	5	0.0	2	0.4
	<i>somnifera</i> L.							2		
	<i>Wrightia</i>						2	0.0	3	0.6
29	<i>tinctoria</i>	Ingaphatrik	Apocynaceae	shrub	Leaves/root	Decoction/infusion/powder		1		
	(Roxb).R Br									
	<i>Zingiber</i>						4	0.0	2	
30	<i>officinale</i>	Adrak	Zingiberaceae	Herb	Root	Tea/decoction/paste		2		0.5
	Rosc.									

## CONCLUSION

Measles is the viral disease and most common in children's. Herbal medicine has a guarantee to take cure of measles and proves stable effects with smallest side effects. Herbal medicine improves immunity of the body along with constant and sensitive conditions and different ailments. The first study information acknowledged about the medical uses of common species of district Mastung-Tehsil Dasht. The northern Balochistan upland is the warm spots of the biodiversity in Balochistan and loaded in remedial and prevalent species. These plants are still regularly used for remedial purposes by natives in their day by day lives. This area, which is rich in remedial plants, still wants further investigation and study. Therefore, it is vital to article and reconstitute the leftovers of the ancient remedial practices which live in Balochistan and further region of the world, and protect this information for future age group. Scientific studies on remedial plants are still not many, and they require for further studies and investigate on the phytotherapy apply in the cure of measles disease is basic. The beneficial use of remedial plants for the population are reduce in cost to healthiness, preservation of diseases, physical condition support, technically verified value and unification of accepted knowledge and skill.

So, this study allowed an analysis of the studies concerning the remedial plants used by peoples for the care of their health. These studies also demonstrate the significance of beneficial plants used by peoples in the cure measles disease. Starting this, it was possible to recognize the major species of plants used by peoples, as a diverse cure of health care. Herbal complements might take time to cure measles but every day treatment may care for the disease from its leaves.

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