

Bone Health Improvement By Natural Herbs.

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Abstract: Bone health is a critical aspect of overall well-being, particularly as individuals age or face specific health challenges. Recent research has increasingly focused on the potential of natural herbs to enhance bone health, offering a complementary or alternative approach to conventional treatments. This abstract reviews the current evidence on the efficacy of various herbs in promoting bone strength and preventing bone-related disorders. Key herbs such as *Cissus quadrangularis* Linn, *Momordica charantia*, *Shorea robusta* etc. have shown promise in preclinical and clinical studies for their ability to modulate bone metabolism, enhance mineralization, and exert anti-inflammatory effects. The mechanisms underlying these benefits include the modulation of osteoblast and osteoclast activity, antioxidant properties, and the regulation of key signaling pathways involved in bone health. Despite promising findings, further research is necessary to fully understand the therapeutic potential and safety profile of these herbs, as well as their optimal dosages and interactions with other treatments. This review underscores the need for more rigorous clinical trials and mechanistic studies to substantiate the role of natural herbs in bone health improvement and to integrate them effectively into holistic health strategies.

Keywords: Bone healing, disorders, veld grape, bitter melon, arjuna, babool, manjistha, sal, doodhi, drumstick leaves, elumbooti leaves

Introduction

Bones are the passive elements of movement system which also supports the muscles and organs. It also serves as a storehouse for calcium which is considered to be an important requirement of human body. The deterioration of integrity of bone can result into internal or external stress called as fracture ^[1]. Bones are the kind of tissue which have a complicated metabolism but in the certain conditions like congenital deformities, trauma, infectious diseases, and surgery, under this conditions healing process on its own becomes difficult, so it becomes necessary to undergo variety of treatments to cure the bone damage^[2,3].

Bone is made up of 70% minerals and 30% organic matrix and cells. Adult bone is richly supplied by a circulatory network made up of periosteal, metaphyseal, and nutritional arteries^[4].

Bones can be affected from various mechanism like **Trauma, Infection, and compromised Blood supply**. Healing of bone is a physiological process which replaces injured bone with new bone^[5]. A physiological process that involves cells being drawn to the site of damage to mediate the inflammatory process and aid in the replacement of necrotic bone with new bone matrix is initiated as soon as an injury occurs^[6].

From the past to the present, several scientific investigations on bone regeneration have been conducted. Various approaches are being researched to shorten and enhance the typical bone repair period. Numerous elements are useful in promoting bone regeneration, according to studies. Applications for using plants to heal illnesses have existed since the dawn of medicine thousands of years ago. The number of herbal products has increased as a result of advancements in pharmacological and analytical techniques, as well as the number of preclinical and clinical studies to obtain therapeutic efficacy and safety data for them. This increase in demand for plants and products prepared from plants has occurred in recent years.^[7]

Fractures, one of the leading causes of workforce loss worldwide, are most frequently caused by trauma. These days, fracture healing in the human body is a significant health issue. A hematoma initially forms at the fracture site during the healing process. Macrophages arrive in this area during the start of the inflammatory phase^[8].

Global population growth and technological advancement have led to a marked rise in traumatic or physiological bone abnormalities, such as those caused by gunshot wounds and auto accidents

As a result of bone weakening brought on by factors like poor nutrition, sedentary lifestyles, menopause, low estrogen levels, and gastrointestinal issues, there has been a reported rise in osteoporotic fractures in addition to an increase in average life expectancy due to technological advancements^[9].

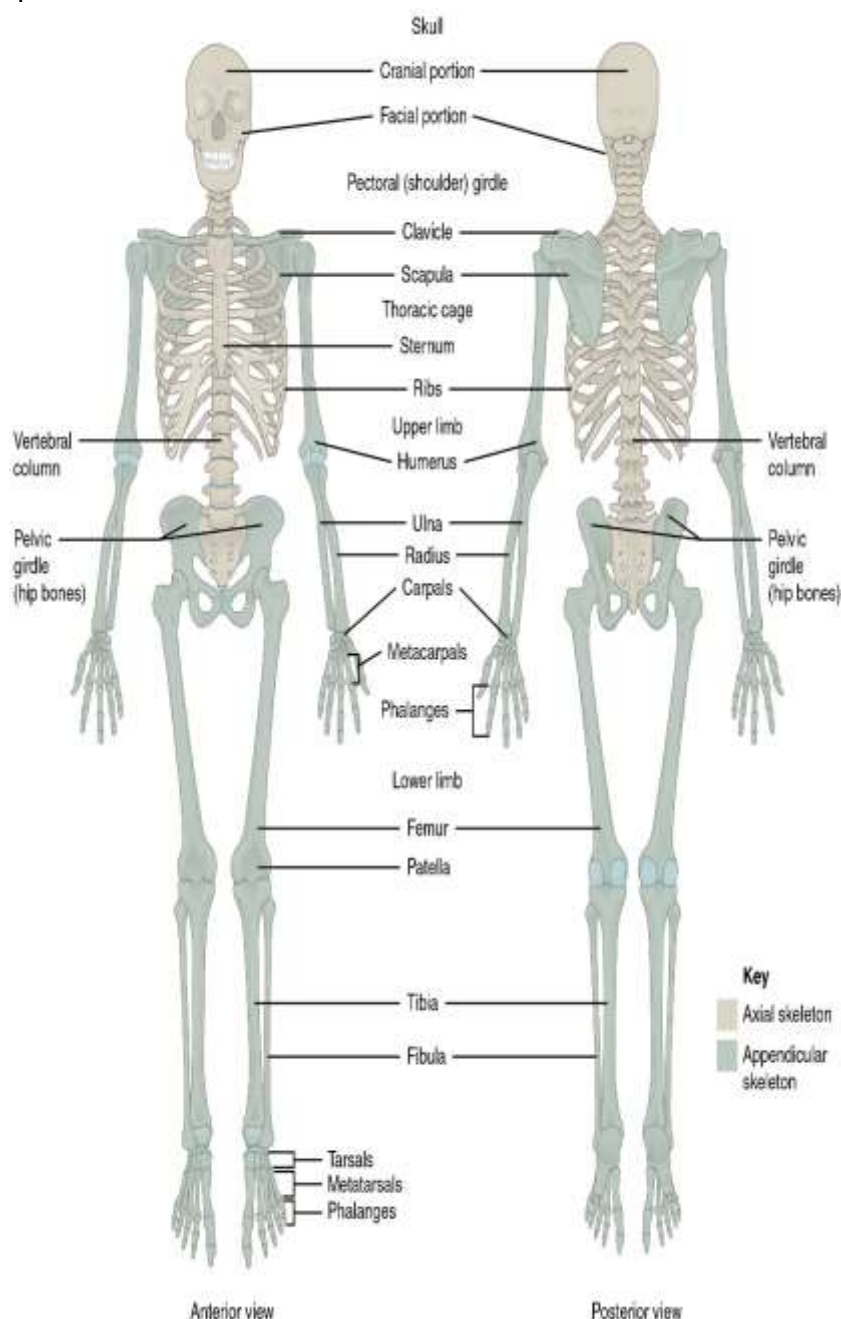
A physiological process that involves cells being drawn to the site of damage to mediate the inflammatory process and aid in the replacement of necrotic bone with new bone matrix is initiated as soon as an injury occurs. Both the vascular supply and the natural stability of the bone are compromised in the event of trauma. When complete

stability is restored at the fracture site, primary bone repair or intramembranous ossification will take place, with little to no callus formation^[10].

The goal of the intricate and step-by-step process of bone healing is to precisely reconstruct the structure of the bone. Bone injuries are an inevitable aspect of being human, yet we are able to deal with them because of bone mending. 18% of adult fractures are radius fractures, making them the most common orthopaedic injury. The distribution of ages is bimodal. In younger individuals, the mechanism of injury is high energy velocity trauma; in older individuals, it is low energy mechanisms such as FOOSH (fall on an outstretched hand)^[11].

Thus, a cutting-edge study that encourages the fracture's early healing is required. Since ethnobotanical studies are the primary source of new information on medicinal plants, they have gained a lot of attention and importance in recent years.

Medicinal plants have a clear physiological effect on humans and have undergone extensive testing to determine their usefulness^[12,13].



➤ **Various types of bone diseases are:**

1. Rheumatoid arthritis
2. Osteoarthritis
3. Bone Cancer
4. Rickets
5. Cervical Spondylosis

6. Osteoporosis
7. Metatarsalgia
8. Polymyalgia rheumatica
9. Bone disease
10. Spondylitis
11. Aplastic anemia
12. Arthritis
13. Fibrous dysplasia
14. Graft-versus-host disease
15. Tennis elbow
16. Paget disease of bone
17. Stress fracture
18. Dislocation
19. Spondylosis
20. Curvature of spine
21. Peromelia
22. Joint disease
23. Metabolic bone disease
24. Multiple myeloma
25. Gout
26. Osteogenesis imperfecta
27. Carpal tunnel syndrome
28. Marble bone disease
29. Craniosynostosis
30. Osteomyelitis
31. Avascular necrosis
32. Hip fracture
33. Fracture
34. Osteopenia
35. Osteonecrosis
36. Scoliosis
37. Low bone density^[14].

1. Rheumatoid arthritis:



It is a long-term, often progressive illness that causes inflammation changes in all of the body's connective tissues. The articular cartilage and joint capsule suffer irreversible damage due to inflammation and swelling of the synovial membranes, which are the sacs containing the lubricating fluid in the joints. The articular cartilage is replaced by pannus, a tissue that resembles scar tissue. Rheumatoid arthritis affects approximately 1% of the population in developed countries and is approximately three times more common in women than in men. It is far less common than osteoarthritis, which is linked to aging. The middle-aged are the main target audience. (Juvenile rheumatoid arthritis is a related illness that affects children.)^[15].

Rheumatoid arthritis often develops gradually, attacking the hands and feet symmetrically first, then moving on to the wrists, knees, and shoulders. Acute pain and stiffness in one or more minor joints are typically accompanied by edema, heat, and muscular soreness that may worsen, last for several weeks or months, or go away. The degree of edema and heat produced does not always correlate with joint pain. Common symptoms include exhaustion, weakened muscles, and weight loss. Frequently, the patient may experience tingling, numbness, and freezing hands and feet before any noticeable symptoms manifest. These symptoms all point to a compressed vasomotor nerve^[16].

2. osteoarthritis:



It is a condition of the joints marked by a gradual degradation of the articular cartilage or the joint as a whole, encompassing the ligaments, subchondral bone (the bone beneath the cartilage), and synovium (the lining of the joint). Among joint diseases, osteoarthritis is the most frequent^[17].

Although the exact cause of osteoarthritis is unknown, biomechanical forces that stress the joints—such as weight bearing, abnormalities in posture or orthopedics, or injuries that result in long-term bone irritation—along with genetic and biochemical factors are thought to play a role in the development of the condition. Changes in cartilage thickness are indicative of the condition's early phases, which are linked to an imbalance between cartilage repair and breakdown. Eventually, the cartilage gets rougher and softer. As the cartilage gradually disappears, the subchondral bone, stripped of its covering, tries to repair the injured area, leading to an uneven remodeling of the joint's surface and an increase in bone density where the damage occurred. Occasionally, thick bone growths known as spurs. It becomes difficult to articulate the joint. Synovial fluid, which serves as a natural joint lubricant and shock absorber, is being lost, which exacerbates these processes^[18].

3. Rickets:

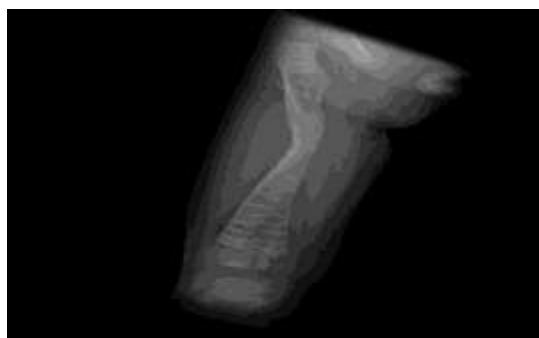


Rickets, a childhood and infant condition brought on by a deficiency of vitamin D in the body that causes improper bone growth and weakening of the bones. Adult cases of the condition are referred to as osteomalacia^[19].

Certain causes of rickets have been identified, despite the common theory that the disease is caused by a deficiency of vitamin D in the body. For instance, inadequate skin conversion to vitamin D from UV light, ineffective food absorption, or aberrant conversion of vitamin D to its metabolites can all lead to vitamin D insufficiency.

In other cases, hereditary abnormalities in genes whose products are involved in vitamin D or phosphate metabolism may be the cause of rickets and illnesses similar to it^[20].

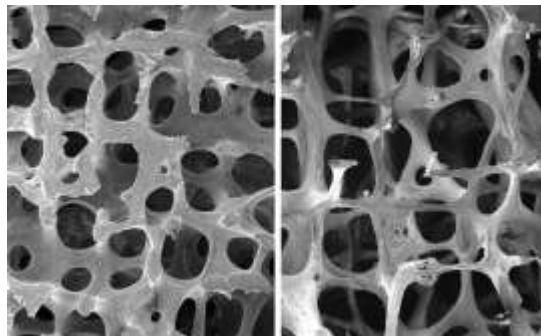
4. Osteogenesis imperfecta:



It is an uncommon genetic connective tissue disorder characterized by easily fractured, brittle bones. OI is caused by a genetic abnormality that results in aberrant or decreased collagen formation, a protein that is essential to connective tissue. OI comes in four varieties, each with unique symptoms and intensities^[21].

OI has no known cure; instead, management focuses on building bone mass, reducing symptoms, and avoiding fractures. Some patients have found success with bisphosphonate medication treatment, and abnormalities may be prevented or corrected surgically by inserting metal rods into specific bones^[22].

5. Metabolic bone disease:



Any of a number of illnesses that result in different bone anomalies or deformities is known as metabolic bone disease. Osteoporosis, rickets, osteomalacia, osteogenesis imperfecta, osteopetrosis, Paget disease of the bone, and fibrous dysplasia are a few examples of metabolic bone diseases. Clinically speaking, metabolic bone diseases increase a patient's risk of fracture and can cause bone pain and height loss as a result of compressed vertebrae^[23]. The majority of metabolic bone disorders are characterized by the degree of bone density loss. Radiologic techniques can be used to measure the bone density in various bones. The most often utilized technique is dual X-ray absorptiometry, which measures the lumbar spine, hip, and radius (a bone in the forearm). Bone density varies depending on sex and genetic background, peaking at age thirty. Men have greater bone density than women, for instance^[24].

6. Arthritis:



The broad term arthritis comes from the Greek words arthro-, which means "joint," and -itis, which means "inflammation." One of the main causes of impairment can be arthritis. For instance, statistics gathered between 2007 and 2009 in the United States revealed that 21 million persons suffered from arthritis and were unable to engage in certain activities due to their disease^[25].

In that nation, the prevalence of arthritis was generally rising, with 67 million adult diagnoses anticipated by 2030. Similarly, over 10 million persons in the UK see their doctors due to arthritis and related diseases each year. While rheumatoid arthritis and osteoarthritis are the two most prevalent types of arthritis, there are many other kinds as well, such as those brought on by infections and metabolic disorders^[26].

7. Fibrous dysplasia:

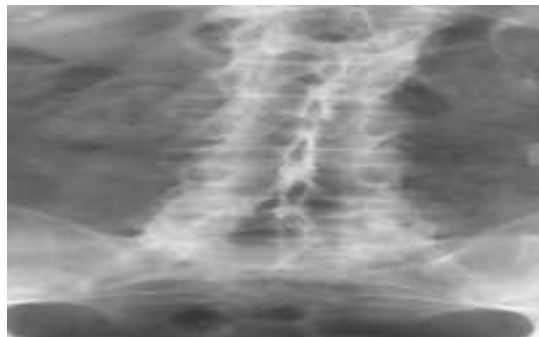


It is an uncommon congenital developmental illness that usually manifests in childhood. It is defined by the replacement of fibrous tissue with solid calcified bone, usually limited to one side of the body and mostly affecting

the pelvic and long bones. It seems that a genetic mutation causing an excess of fibrous tissue is the cause of the condition^[27].

Fibrous dysplasia is classified as either monostotic or polyostotic. A growing mass of osteoblasts and fibroblasts that develops from bone tissue is the hallmark of monostotic fibrous dysplasia. Fibroblast masses and braided bone are the hallmarks of polyostotic fibrous dysplasia^[28].

8. Spondylosis:



Inflammation of one or more vertebrae is known as spondylitis. There are various types of spondylitis; the most common ones are tuberculous, hypertrophic, and ankylosing spondylitis^[29].

Adolescent boys and young men are the main demographic that are typically affected by ankylosing spondylitis, also known as Bekhterev spondylitis, deforming spondylitis. Prolonged lower back discomfort is its initial symptom. Swollen joints (sometimes identical to rheumatoid arthritis), fusion (ankylosis) and deformity of the spine, anemia, and stiffness and limitation of movement are indicative of the disease's progression. As with rheumatoid arthritis, nonsteroidal anti-inflammatory medication (NSAID) may be used as part of the treatment.

Osteoarthritis of the spine, or hypertrophic spondylitis, is a degenerative condition that primarily affects people over 50. The degeneration of intervertebral disks and the development of spurs on the vertebrae themselves are its defining features. Exercises to maintain a normal range of motion are combined with heat therapy and rest.

Mycobacterium tuberculosis, the tuberculosis bacillus, infects the vertebral column, resulting in tuberculous spondylitis, also known as tuberculosis of the spine^[30].

9. Paget disease of Bone:



It is a middle-aged chronic bone disease marked by excessive bone tissue production and degradation. This is a localized disease that can affect numerous bones or almost the entire skeleton. It can also be multifocal, affecting only one bone. It is classified as one of the metabolic bone diseases as a result. Sir James Paget, an English surgeon and pathologist, is honored to have been the first to describe the illness^[31].

Those of northern European heritage are more likely to have Paget disease of the bone, whilst those of Asian and African descent are hardly likely to have it. Both excessive bone production, which is handled by osteoblasts (cells that synthesize bone) and excessive bone resorption, which is mediated by osteoclasts (cells that breakdown and absorb bone), are characteristics of the condition. Structures that resemble viruses can be observed under an electron microscope when osteoclasts obtained from patients with Paget disease of the bone are examined. The osteoclasts are incredibly active; they rapidly resorb bone while also stimulating the activation of a "coupling factor" that causes local osteoblasts to produce more bone. This could be an uncontrollably large and disorderly increase. As a result, the bone structure is "chaotic," with regions of excessive bone production and resorption, which causes bone weakness and abnormalities.

The bone disease Paget has no known treatment. Medication that inhibits the activity of bone cells, such as calcitonin or bisphosphonates, is part of the treatment. In addition to engaging in regular exercise, people with Paget disease of the bone should consume enough calcium and vitamin D each day^[32].

10.Fracture:



A fracture is described as a total or partial detachment of the bone's continuity^[33]. Fracture restoration is a complicated physiological event that includes the combined engagement of hematopoietic and immunological cells in the bone marrow^[34,35]. The fundamental concepts of fracture treatment are bone reduction, immobilization, and regeneration. Immobilization is beneficial for preventing the fractured pieces from moving or angling^[36].

>Two basic forms of bone creation are indirect fracture repair and direct fracture formation.

Primary (Direct) fracture recovery: Relatively little callus growth is a characteristic of primary (direct) fracture recovery^[37]. Since most fracture heals secondarily or indirectly, primary recovery happens infrequently^[38].

Secondary fracture recovery: Histological studies have shown that secondary fracture recovery occurs in four parallel stages: hematoma formation, first inflammatory response (duration: 2–4 weeks), mending (duration: 1–2 months; involves proliferation and differentiation), and late remodeling (duration: months or years)^[39].

The treatment of bone fractures is documented in the writings of Sushruta (500 B.C.), who discussed immobilization, manipulation, and splinting using a unique variation of clay and splint, as well as in the 400–335 B.C. periods of Hippocrates^[40].

Common types of fractures include:

- **Stable fracture:** The fractured ends of the bone align and are hardly misaligned.
- **Open (Compound) fracture:** The bone may pierce the skin, or the skin may rupture at the site of the fracture due to a blow. The wound may or may not show the bone.
- **Transverse fracture :** There is a horizontal fracture line in this kind of fracture.
- **Oblique fracture:** The pattern of this kind of fracture is angled.
- **Comminuted fracture:** The bone breaks into three or more fragments in this kind of fracture^[41].



Causes of fractures are:

The most common causes of fractures are:

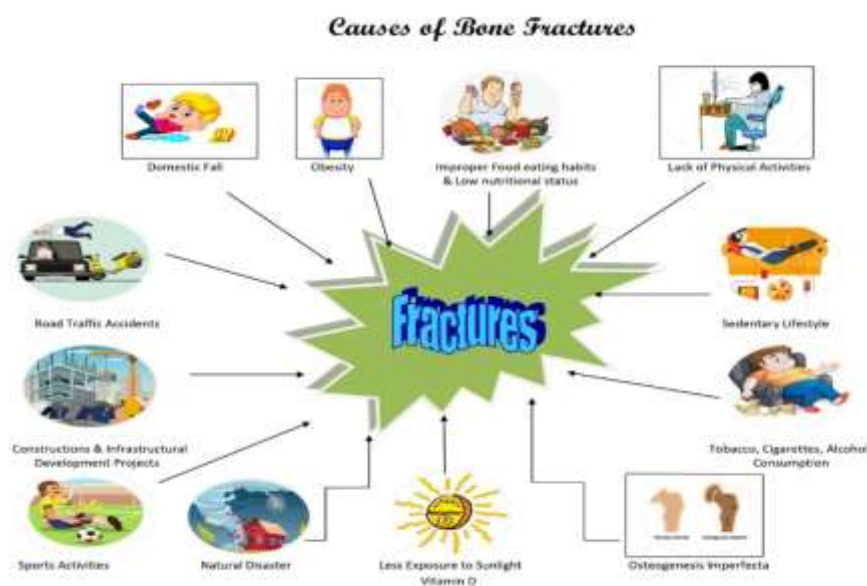
Trauma: Fractures can happen as a result of falls, car crashes, and football tackles.

Osteoporosis: Bones weakened by this illness are more prone to breaking.

Overuse: Muscle aches and increased stress on the bone might result from repetitive action. Stress fractures may arise from this. Athletes are more likely to sustain stress fractures^[42].

Symptoms:

- Soreness and swelling surrounding the injury.
- Bruising.
- Deformity: A portion of the bone may pierce through the skin, or a limb may appear malpositioned^[43].



ALLOPATHY DRUGS FOR TREATMENT OF BONE DISEASES

DRUGS	DRUG DESCRIPTION
Cholecalciferol	a kind of vitamin D that is used to treat a number of illnesses, including osteoporosis, chronic renal disease, hypoparathyroidism, familial hypophosphatemia, and refractory rickets ^[44] .
Pamidronic acid	a bisphosphonate used to treat osteolytic bone lesions, hypercalcemia of malignancy, and Paget's disease ^[45] .
Zoledronic acid	a bisphosphonate used to treat multiple myeloma, bone metastases from solid tumors, and hypercalcemia associated with cancer ^[46] .
Alendronic acid	a bisphosphonate medication intended to treat and prevent osteoclastic bone resorption in the event of osteoporosis ^[47] .
Ibandronate	a bisphosphonate that helps postmenopausal women with osteoporosis ^[48] .
Clodronic acid	a bisphosphonate used to treat osteolysis, hypercalcemia from cancer, and osteoporosis in postmenopausal women ^[49] .
Risedronic acid	a bisphosphonate used to treat Paget's disease and osteoporosis ^[50] .
Etidronic acid	A bisphosphonate medication used to treat and prevent osteoporosis because it stops osteoclastic bone resorption ^[51] .
Tiludronic acid	a bisphosphonate that is used to treat bone damage caused by Paget's disease ^[52] .
Calcium	a mineral that can be found in prescription medications or over-the-counter supplements that are intended to address certain medical disorders associated with low calcium levels ^[53] .

These are the various herbal plant which are used in treatment of bone disorders [or] improving bone health:

1. *Cissus quadrangularis* Linn (Veld grape) (Hadjod):



Fig.1 *Cissus quadrangularis* Linn

❖ Grown in Africa, Sri Lanka, and India, *Cissus quadrangularis* Linn., sometimes known as hadjod, is an indigenous medicinal plant. Bhava Prakasha and Chakra Dutta prescribed it as a general tonic in ancient Ayurvedic writings, particularly for patients with fractures. Bonesetters frequently use it both as an internal treatment and as an exterior application^[54]. CQ is a shrub with four wings internodes on a thin, fleshy, fibrous, smooth stem. This plant's stem and roots have antibacterial and antioxidant properties.

Ascorbic acid, carotene, calcium, phytoestrogenic steroids, and anabolic steroids have all been found in plant extracts^[55]. The plant's toxicological analysis showed that the medication is safe to take for an extended period of time, even at greater doses^[56].

2. *Momordica charantia* (Bitter melon):



Fig.2 *Momordica charantia*

❖ *Momordica charantia* on bone repair: in rats with tibial bone defect, it provides favorable regulation of blood pressure, blood sugar, anti-carcinogenic, antibacterial, antioxidant, anti-inflammatory, wound healing, and tissue regeneration. *Momordica charantia* (MC) is a tropical and subtropical vine of the family *Cucurbitaceae* that is widely planted for its edible fruit in Asia, Africa, and the Caribbean. It is also known by many other names, including balsam-pear, bitter melon, Goya, bitter apple, bitter gourd, and bitter squash. Its numerous kinds vary greatly in the fruit's bitterness and form^[4]. It contains compounds that are physiologically active, including alkaloids, glycosides, saponins, and fixed oils, triterpenes, proteins, and steroids in its structure^[5].

3. *Terminalia arjuna* Linn (Arjuna):



Fig.3 *Terminalia arjuna* Linn (Bark).

❖ The Arjuna plant's bark possesses significant medical value in terms of its ability to repair fractures, reduce cholesterol, inhibit ulcers, and prevent mutagenesis activity^[6].

Other calcium salts (9%), tannin (16%), and calcium carbonate (34%), are all present in the bark. In addition, it includes zinc, copper, oligomeric proanthocyanidins (OPCs), gallic acid, ellagic acid, sugar, tannins, organic acid, magnesium, aluminum, polyphenols, and coloring materials. *Terminalia arjuna* ethanolic extract has a positive effect on the healing of tibial fractures since it contains of *Terminalia arjuna*'s tripenoid, saponin, and tannin concentrations, which have a discernible effect on bone regeneration.

The metabolism of alkaline phosphatase, calcium, and phosphorus is crucial for osteoblastic activity^[7].

4. *Acacia arabica* L (Babool):



Fig.4 *Acacia arabica* L

❖ Since ancient times, people have used *Acacia arabica* L. Willd. (AA) to treat disorders associated to the bones and muscles, such as rheumatoid arthritis, bone loss, and fractures. Using in vitro primary bone marrow cultures, investigate the effects of the aqueous (AAA) and ethanolic (AAE) extracts of AA on osteoblast proliferation and differentiation, osteoclastic activity, and bone matrix mineralization^[8].

5. *Rubia Cordifolia* (Manjistha):



Fig.5 *Rubia Cordifolia*

❖ Another Ayurvedic medication comes from the roots of *Rubia cordifolia*. Manjistha, also known as *Rubia cordifolia*, L. (family: *Rubiaceae*), is a significant herbal remedy utilized in Indian medicine. The plant's root is marketed under the trade name Manjith and is usually referred to as Manjistha. There are many colloquial names for plant drugs, including Manjith, Manjistha in Bengali, Indian Madder in English, Mandar, Majathi in Assam, Bhandi, Bhandiralatik in Sanskrit, Manjithi in Malayalam, Manjestha in Marathi, and Majit, Manjit in Hindi^[9]. It is applied to treat fractures of the bones. It is thought to be tonic, antitussive, and helpful for persistently low fevers^[10].

6. *Shorea robusta* (Sal/Sakhua):



Fig.6 *Shorea robusta*

❖ *Sal B* therefore has a vasodilator effect, maintains red blood cell deformability, and improves hematopoietic system performance^[11]. Our recent in vitro studies have demonstrated that *sal A* can promote osteoblast growth, bone matrix synthesis, and bone mineralization while suppressing glucocorticoid-induced adipogenesis in bone

marrow stromal cells^[12]. The gum of *sal* tree is applied on fracture bone, it sets the bone. The paste of bark is applied on affected area; it helps to the circulation of blood^[13].

7. *Euphorbia hirta* L (Doodhi):



Fig.7 *Euphorbia hirta* L

❖ *Euphorbia hirta* and Palas roots are combined and crushed before being put to the broken area. Additionally, the extract is extracted and the mixture of the two is well-crushed. Take half a cup of the extract twice a day, on an empty stomach in the morning and the evening^[14].

8. *Moringa oleifera* (Murangi tree/ drumstick leaves):



Fig.8 *Moringa oleifera*

❖ *Moringa oleifera*, the plant that produces drumstick leaves, is incredibly nutritious and has a lot of potential for increased use in human diets. Healthy antioxidants and bioactive plant components abound in moringa. The leaves are a great source of numerous minerals and vitamins. Potassium, calcium, phosphorus, iron, vitamins A, D, and C, as well as well-known antioxidants including flavonoids and betacarotene, are all abundant in *M. oleifera*. Because moringa can lower blood cholesterol levels, there should be a decreased chance of heart disease. 45.38 g of carbohydrates, 25.42 g of protein, 2.91 g of fat, and 23.33 mg of vitamin C are all included in moringa leaves. The leaf of the moringa plant has many health benefits, including increased immunity, stronger bones, treatment for erectile dysfunction, prevention of liver damage, treatment for Alzheimer's disease, relief from menstruation discomfort, and increased libido^[15].

9. *Ormocarpum cochinchinense* (Elumbotti leaves):



Fig. 9 *Ormocarpum cochinchinense*

❖ Bone healing exhibited a good trend with *Ormocarpum cochinchinense*, which was traditionally utilized in the communities to treat bone fractures^[16]

✓ Herbal plants such as Veld grape, Bitter melon, Arjuna, Babool, Manjistha, sal/Saakhua, Doodhi, Drumstick leaves, Elumbotti leaves, etc. can be used to cure bone fractures and other different types of bone disorders. because they are readily available innature.

Thus, we create a herbal composition that has minimal to no negative effects in order to treat or manage different bone disorders.

✓ Discussion:

• Various bone disorder that requires special attention for treatment and cure. Though there are many synthetic agents available for it, they still have their own side effects, so the discovery of safer options is important, and this article summarizes the herbs that can be used in the treatment as aqueous extract. These herbs have been used for years for the treatment of bone disorder, but due to their slow effect, they are still not so much in use or used as a last option in many cases. So, it is important to study the phytoconstituents of these drugs, which can be potent for treating bone disorder, and explore the new area of research in the field of ayurveda. Bone health is a critical aspect of overall well-being, especially as individuals age. Maintaining strong bones can help prevent conditions such as osteoporosis and fractures. Natural herbs, with their rich array of bioactive compounds, offer a promising avenue for supporting and improving bone health. This discussion explores the potential benefits, mechanisms, and considerations of using natural herbs for bone health.

✓ Conclusion:

• In conclusion, natural herbs offer a promising and complementary approach to enhancing bone health. While they should not replace conventional medical treatments, many herbs are recognized for their potential to support bone density, reduce inflammation, and improve overall skeletal integrity. Herbs like **veld grape, bitter melon, arjuna, babool, manjistha, sal, doodhi, drumstick leaves, elumbotti leaves** provide beneficial nutrients and compounds that may contribute to stronger bones. Integrating these herbs into a balanced diet, combined with other healthy lifestyle practices such as regular exercise and adequate calcium and vitamin D intake, can help promote better bone health. However, it's essential to consult with a healthcare provider before starting any new herbal regimen, especially if you have underlying health conditions or are taking other medications. With a well-rounded approach, natural herbs can be a valuable component of a holistic strategy for maintaining and improving bone health.

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