



ISSN Print: 2394-7500  
ISSN Online: 2394-5869  
Impact Factor: 8.4  
IJAR 2023; 9(3): 137-142  
[www.allresearchjournal.com](http://www.allresearchjournal.com)  
Received: 03-12-2022  
Accepted: 05-01-2023

**Dr. Anita Bagga**

Professor, Department of  
Pharmacy, Homoeopathic  
Medical College and Hospital  
Sector 26, Chandigarh, Punjab,  
India

**Dr. Deeksha Garg**

Assistant Professor,  
Department of Surgery,  
Homoeopathic Medical College  
and Hospital Sector 26,  
Chandigarh, Punjab, India

**Corresponding Author:**

**Dr. Anita Bagga**  
Professor, Department of  
Pharmacy, Homoeopathic  
Medical College and Hospital  
Sector 26, Chandigarh, Punjab,  
India

## A scientific overview of hormesis of healing potential by homoeopathic injury medicines

**Dr. Anita Bagga and Dr. Deeksha Garg**

### Abstract

Healing is one of the most beautiful portrayals of human physiology. Movement and replication of epithelial cells, removal of dead tissue by neutrophils and macrophages, fibrocytes changing into fibroblasts, soft spongy mass of granulation tissue protected by scab and supported by matrix of connective tissue with final restoration of structure and function of affected part is not less than a piece of art. Essential component of good healing involves formation of healthy granulation tissue, reduction in pain, no suppuration, maximum regeneration and minimal complications and homoeopathic injury medicines possess of healing by virtue of their peculiar action on human body. Most of the injury medicines have one thing in common of their origin in Vegetable Kingdom and prominent among them are Arnica Montana, Bellis Perennis, Calendula officinalis, Hypericum, Ledum Pal, Ruta Graveolens and Symphytum.

**Keywords:** Hormesis, healing, injury, regeneration, extra cellular matrix, homoeopathic injury medicines

### Introduction

Response to an injury is very complex and involves many components for complete healing. Fate of healing depends upon severity of damage, type of injury, and involvement of type of cells and tissues. Healing can end in complete regeneration and reconstitution of tissue, scar formation or can lead to contracture and keloid formation. Chances of regeneration are excellent in labile cells, good in stable cells and very limited in permanent cells. Reconstitution of normal structure happens only where extra cellular matrix or basement membrane is intact.

### Discussion

#### 1. Type of cells

**Labile cells:** They are continuously dividing cells and continue to proliferate throughout the life replacing that is continuously being destroyed. These cells constitute surface epithelia, lining mucosa of all excretory ducts of the glands, columnar epithelium of GIT and uterus, transitional epithelium of urinary tract and cells of bone marrow and haemopoietic tissue [1].

**Stable cells:** They normally demonstrate a low level of replication but undergo rapid division in response to stimuli and are thus capable of reconstituting the tissue of origin. These include all parenchymal cells, mesenchymal cells and vascular endothelial cells.

**Extra cellular matrix:** Cells grow, move and differentiate in intimate contact with the ECM and the matrix influences the cell function. ECM is secreted locally and gathers into a network in the spaces surrounding cells. ECM provides reservoir for growth factors controlling cell proliferation. It also provides a substratum for cells to adhere, migrate, and proliferate. Three groups of macromolecules are physically associated to constitute the ECM

- Fibrous structural proteins i.e. collagen and elastin,
  - Group of adhesive glycoproteins, fibronectin and laminin
  - And a cell of proteoglycans and hyaluronidase
- a) **Collagen:** It is the most common protein providing extracellular framework for all multicellular organisms.
- b) **Elastin:** It is present in blood vessels, skin, uterus and lung and provides elasticity for their function.

- c) **Glycoproteins and Integrins:** They link ECM components to one another and to cells.
- d) **Proteoglycans:** They are modulators of cell growth and differentiation.
- e) **Hyaluronidase:** It binds a large amount of water, forming a viscous hydrate gel which gives connective tissue turgor pressure and an ability to resist compression forces. It thus lubricates many types of connective tissue notably in cartilage and joints.

These macromolecules assemble into two general components – interstitial matrix and basement membrane. Interstitial matrix is present in spaces between epithelial, endothelial, and smooth muscle cells and in connective tissue.

**Permanent cells:** they have left the cell cycle and cannot undergo mitotic division in post-natal life for e.g. Nerve cells, skeletal and cardiac muscles. Hence neurons destroyed in central nervous system are permanently lost, skeletal muscle have some regeneration activity, cardiac muscle have limited regeneration capacity; mostly there is connective tissue scarring.

**2. Regeneration:** involves two processes

- a) Proliferation of surviving cells to replace lost tissue
- b) Migration of surviving cells into vacant space.

For above they require following growth factors

- EGF (Epidermal Growth Factor) secreted by damaged epithelial cells.
- TGF beta (Transforming Growth Factor beta) secreted by blood platelets and is required for fibroblast activation
- VEGF (Vascular Endothelial Growth Factors) provided by macrophages for angiogenesis [2].

**3. Pattern of wound healing:** There are two patterns of wound healing

▪ **Healing by First Intention (Primary Union)**

Healing by first intention occurs in clean incised wounds with good apposition of the edges as seen in planned surgical incisions. Scar formation is minimum in this process.

**Healing by Second Intention (Second Union)**

Healing by second intention occurs in open wounds with massive loss of tissues, usually associated with necrosis or infection. There is surface depression though epithelium is regenerated with formation of thick collagenous scar tissue in the dermis. Complications of contracture, hypertrophic scar and keloid may arise.

**Fibrosis**

Repair does not involve regeneration alone but replacement of cells with fibrocytes also. Fibrocytes situated around the capillaries and loose connective tissue change into active fibroblasts to start protein synthesis. There is cross linking of triple helix structure of collagen by adhesive glycoproteins i.e. fibronectins which results in formation of collagen fibers which leads to formation of scar tissue.<sup>2</sup>

**4. Histopathology of wound and healing:** injury causes death of epithelial cells, capillaries, connective tissue and epithelial basement membrane.

- Immediately after injury there is formation of clot,

- Within 2- or 3-hours process of inflammation begins to start the process of healing,
- Sequence of events involve mild hyperaemia, vasodilatation, movement of neutrophils and macrophages, removal of clot by macrophages with proliferation of blood vessels and fibroblastic activity,
- Finally the scab turns loose when there is regeneration of epithelial tissue and fibrous union of edges. Development of scar depends upon whether the healing is by First Intention or Second Intention.

## 5. Hormesis – Role of Homoeopathic Medicines

Homoeopathic medicines boost the natural process of healing resulting in fast healing of wounds with minimum complications. They do it by producing a special condition called hormesis – A hypothesis proposed by R Bell and Mary Koithan have proposed in their article titled, “A model for nano particles allostatic cross adaptation and time dependent sensitization in a complex adaptive system.” It is proposed that homoeopathic remedies are the source of nano particles that mobilize Hormesis via non - pharmacological affections on specific biological adaptive and amplification mechanism.

Hormesis is a process in which exposure to a low dose chemical agent or the environmental factor i.e. damaging at a higher dose induces an adaptive beneficial effect on the cell or organism [3].

## Indications of homoeopathic medicines with understanding of their curative speciality

### Arnica Montana

#### Introduction

As given by M.L Tyler, Arnica grows all over the world over in mountainous regions. A great grandson of Nelson hailing from Andes, seen only once, years ago is still remembered because he told the tale of Arnica. He told of terrible falls in these mountains, and how the people gather Arnica, pour boiling water on the plants and give the infusion to drink to injured men, with astonishing results.

Dr. Hahnemann say of Arnica, “Hence it is very beneficial not only in injuries caused by severe contusions and lacerations of fibres but also in the most severe wounds by bullets and blunt weapons, in the pains and other ailments consequent on extracting the teeth and other surgical operations whereby sensitive parts have been violently stretched as also after dislocation of joint after setting, fractures of bones etc. [4].

Dr. Nash describes Arnica as, “This is the leading remedy for bruises and the results there from, and the symptoms – “Weakness, weariness, sensation as if bruised.” “Felt as if bruised over the whole body,” as found in the proving, explain the reason and the many cures it has made even in the high and the highest potencies, of both acute and chronic affections.” [5].

Dr. N.M. Chaudhari describes Arnica as the king of our Traumatic Remedies [6].

#### Injury therapeutics

Arnica is used in mechanical injuries to

- Muscles
- Contusions, bruises, sprains and ecchymosis
- Subcutaneous and external haemorrhage

- Injuries that are attended with bluish redness and intense soreness
- Contusion of the periosteum
- Fractures of the bones with profound suppuration
- Stupor from concussion
- Pains in muscles after overexertion or in a form of pain which occurs during an act of swallowing
- Chronic bad affects resulting from severe falls, shocks, blows, contusions, twisting or tearing of solid parts of human frame
- Meningitis and pneumonia, pleurisy after mechanical injury
- Traumatic fever
- Tooth extraction
- Surgical operations
- Externally on stings of wasp

#### **Contraindication of Arnica**

Externally on open wounds with lacerations because it brings dermatitis or cellulitis when applied on wounds.

#### **Special indication of Arnica Mother Tincture**

The strong tincture of Arnica applied to a wasp sting prevents the pain and swelling and a couple of hours the sting is forgotten<sup>[4]</sup>.

#### **Mechanism of action**

- Haemostatic
- Promotes angiogenesis and phagocytosis
- Expedites absorption of clots
- Retards suppuration
- Antimyalgic medicine
- Antipyretic and antiseptic medicine thereby protects the body from general bad effects of injuries.

#### **Recommendation for use of Arnica**

- Before start of operation and immediately after any surgical operation so as to favour healing without complications (may be given in high dose if planned to give in single dose),
- For any injury with internal bleeding,
- Even in open wounds twice or thrice in the beginning to prevent infection
- and to remove pain (as early use retards suppuration),
- In roadside injuries to prevent shock and stupor and infection,
- As an Antimyalgic for controlling pains of the muscles especially associated with over exertion and during the process of deglutition,
- Externally only to control pain and swelling produced by sting of wasp,
- It may be used singly or in alternation with other injury medicines
- depending upon the nature of case and stage of injury,
- It may be used in high potency or low potencies (with repetition).
- It may be used as preventive of pyaemia

#### **Bellis Perennis**

##### **Introduction**

M L Tyler mentions, "our own lively indigenous bruise wort, woundwort our own Arnica."<sup>[4]</sup>

Burnett says that, "it acts very much like Arnica."

Culpeper writes of the, "little common daisy – the leaves and sometimes the roots, are used, and are reckoned drinks, and are accounted good to desolve congealed and coagulated blood." I refer to 1) Johann Schroeder Pharmacopoeia Universalis with Hoffman remarks 1748. The daisy is here commended in haemorrhage i.e. as vulnerary for the effects of falls, blows and bruises.<sup>6</sup> "It is a great friend to commercial travellers and in railway spine of moderate severity, it has not any equal so far my knowledge reaches."

#### **Injury therapeutics**

Internal haemorrhage

Overstretching of muscles and muscular spasm

#### **Mechanism of action**

- It arrests capillary bleeding in any type of wound including internal maneuvers like catheterization and spectroscopic studies where there is laceration of mucous membrane
- Removes contractions and compression of muscles

#### **Recommendations**

Along with Arnica, when there is internal bleeding especially soft tissue Injuries including muscles.

#### **Calendula officinalis**

##### **Introduction**

Dr. Richard Hughes in his Manual of Pharmacodynamics says, "Calendula has a most beneficial influence over wounds, esp, incised wounds, promoting union by first intention, or, where that is impossible, favourable cicatrisation with the least possible amount of suppuration. From that time to this Calendula has always been used in homoeopathic practice to promote the healthy process in wounds, ulcers, burns and other breeches of surface." "it was used on a large scale by our American collageaus in the treatment of injuries arising in the course of their civil war." "no suppuration seem to live in its presence."<sup>[7]</sup>

Dr. Edward Hamilton in his Flora Homoeopathica considers Marigold far superior to Arnica in healing recent wounds and lacerations with or without loss of substance. He quotes Dr. Schutz who has used cCalendula with most satisfactory results in compound fractures of the limbs. It will be suffice to remark that in all cases where the fleshy parts have been carried away and the edges of the wounds cannot be brought together by plaster, the Aqua Calendula is the last application as a wash. The suppurating process which is so exhausting in large wounds is either entirely prevented or very much shortened by the Calendula wash<sup>[8]</sup>.

#### **Injury therapeutics**

- Suppurative injuries
- Lacerations
- Septic wounds
- Incised wounds
- Torn, ragged wound with loss of substance
- Open wound and ulcers
- Superficial burns and scalds
- Gangrene
- Surgical wounds
- Fractures

**Special indication of Calendula mother tincture**

1. lotion of Calendula tincture for first wash of any kind of wound.
2. Calendula ointment for dressing of wound.

**Mechanism of action**

- Calendula is a great Regenerating Agent with a marked affect on ECM.
- It affects all types of cells including Labile, Stable, Permanent, ECM, neutrophils, macrophages and fibrocytes
- Its chief effect is to control the suppurations as it is capable of removing
- inflammatory conditions of the injured parts.
- Its an antiseptic agent
- It favours angiogenesis and phagocytosis
- It can also act as an haemostatic agent.
- It promotes both union by first and second intention and is capable of removing soreness and pain associated with inflammation.
- It favours the cicatrisation of the parts where regeneration is impossible and
- retards complications of contracture, hypertrophic scar and keloid formation.
- It is a healer par excellence as it boost and promotes all components
- involved in healthy healing from formation of scab to contraction of wound.

**Recommendations for use of Calendula**

- Calendula is highly recommended for use as an internal medicine as well as an external aid.
- Because of its anti-suppurative property it is recommended for use in all types of mechanical injuries, open wounds, roadside injuries, fractures or planned surgical procedures.
- It shall be used in low potency repeated doses for internal use immediately after operations till formation of scars along with mother tincture for external use.

**Hypericum Perforatum****Introduction**

Dr. Lippe described Hypericum as Arnica of the Nerves<sup>[9]</sup>.

Dr. Richard Hughes mentions that, "its action on nervous system as inferred from provings led Dr. Franklin to use it in injuries involving the nerves, and in large opportunities he enjoyed during the American war, he learnt to place the utmost confidence in its use."<sup>[7]</sup>.

Dr. Burt says that "is acts through cerebrospinal nervous system, through the sentient nervous system, acts upon the radicals of the veins."<sup>[10]</sup>.

Dr. Allen recommends its use in punctured, incised or lacerated wounds, sore painful especially if of long duration<sup>[11]</sup>.

**Injury therapeutics**

- Recent or remote injuries to spinal cord, Spinal concussions especially coccyx
- Injuries to the nerve in general especially sentient nerves,
- Crushed injuries and their bad effects,
- Tetanus after traumatic injury.

**Special indication of Hypericum Mother Tincture**

It can be used externally especially on open painful wounds and crushed injuries.

**Mechanism of action**

- It promotes regeneration of peripheral nerves when injured because central neurons of which the axons is the peripheral extension is away from the site of damage.
- It is best indicated in crushed injuries to promote regeneration of peripheral nerves because in crushing injuries the sheaths of neurons remain in continuity. Thus it promotes sprouting of axons along the track of degenerate nerve when the distal injured part of neuron is in apposition with the sprouting axons.
- It acts as an analgesic by virtue of its action on nerves.
- Its indication as preventive of tetanus seems to have its capability of removing the anaerobic condition of injured part by increasing the blood flow and the process of phagocytosis.

**Recommendation**

- For all crushed injuries it shall be prescribed internally in potency and externally as mother tincture.
- Most suitable to remove soreness and pains especially of coccyx or spinal cord even if associated with remote injury.
- It is preventive of tetanus and to be given in few doses of high potency.
- It removes pains of injuries produced from pins, thorns, needles, splinters and bites of animals etc.

**Ledum Palustre****Introduction**

Dr. Tyler quotes Dr. Hahnemann saying that this very powerful medicine is suitable for the most part only for chronic maladies in which there is predominance of coldness and deficiency of animal heat<sup>[4]</sup>. Its chief use in the homoeopathic school has been in the non-inflammatory articular affections, Ledum acts especially on parts of the body where cellular tissue is wanting as the fingers and toes, hence affects the smaller joints rather than the large."<sup>[7]</sup>.

Teste recommends and says that, "Ledum is to punctured wounds what Arnica is to contusions." "it gives almost immediate relief to itching caused by mosquito bites."<sup>[4]</sup>.

Dr. Kent calls it a great remedy for the surgeon, closely associated in traumatism with Arnica and Hypericum especially injuries from stepping on tracks, puncturing with needles, wounds that bleed scantily but are followed by pain, puffiness and coldness of the parts." "if tetanus comes on after punctured wounds, think of Hypericum, but give Ledum at once and prevent tetanus." "but Ledum has a special action on the capillary system in parts where cellular tissue is wanting and where a dry resisting texture is present, as in fingers and toes."<sup>[4]</sup>.

Nash has some extra things to emphasize in regard to Ledum. Ecchymosis: Ledum sometimes comes in to finish up an Arnica case, where Arnica was best at first; Ledum often removes the ecchymosis and discolouration more rapidly and perfectly<sup>[5]</sup>.

**Injury therapeutics**

- Punctured wounds especially by rusty nails to finger tip and toe

- Wounds by stings, bites of insects and animals
- Crushed injuries
- Lacerated injuries
- War injuries
- Septic wounds
- Tetanus
- Cold wounds (Non-inflammatory wounds)
- Wounds with scanty bleeding and little inflammations
- Spraining of ankles and feet
- Traumatic whitlow
- Ecchymosis
- long remaining discolouration after injuries esp. black, blue or spots turning green

#### **Mechanism of action**

- Acting on capillaries boosts angiogenesis and restores blood circulation to the injured parts thereby preventing tetanus.
- Helps in assimilation of blood clots thereby removing discolouration of long standing
- It also restores healing of nerves especially of the parts where there is deficiency of cellular tissue

#### **Recommendation**

- Any injury where tetanus is suspected, Ledum is to be given immediately in higher potency. Hypericum is given after Ledum.
- It is to be given after Arnica to complete the pending work of Arnica i.e removal of discolouration of injured spots as indicated especially in maladies of chronic nature.

#### **Symphytum officinale**

N M Chaudhari says, "Here is another remedy of very ancient lineage, we find it in mentioned in the writings of Dioscorides. It is found all over Europe and in certain parts of America, in fields and near about ditches. It greatly diminishes irritation in sores and lacerations, lessens, suppuration and promotes healing. Medical literature is replete with instances of wonderful cures effected by symphytum in cases of injuries both to the soft parts as well as to the periosteum and body tissues [6].

Dr. M L Tyler writes, "Symphytum is our great remedy of fractures, and of fractures that fail to unite. It has a special mission in regard to periosteum and bone." [4].

#### **Injury therapeutics**

- Mechanical injuries caused by blunt instruments
- Wounds of soft parts, periosteum and bony tissue
- Comminuted fractures
- Malunion of fractured bones
- Tendon injuries
- Pain and irritability at the site of fracture
- Periosteal pains after healing of wounds
- Especially indicated for eyeball injury with great pain

#### **Contraindication of symphytum**

- Not recommended for injuries caused by sharp, stabbing instruments and in penetrating injuries
- For planned knee surgeries

#### **Mechanism of action**

- It fastens the process of organization after fracture of bones,

- Promotes callus formation,
- Increases osteoblastic and osteoclastic activity of bone cells,
- Activates ossification process during healing,
- Reduces pain and promotes angiogenesis for fast healing of soft tissue.

#### **Recommendation of symphytum**

- Symphytum is a great healer of bony tissue especially for use in fractured bones and controlling pains at the point of fractures.
- Reduces pain of periosteal origin and of soft tissues which are associated with bony socket for eg. Eyeballs.
- Reduces post operation pains of stumps.
- It is suitable to be repeated in low potencies.

#### **Ruta Graveolens**

##### **Introduction**

"Rue was formerly called the herb of grace, from being used in bunches by the priest to sprinkle holy water over the people."

M L Tyler states that, "it is one of the great vulneraries (with Arnica), helping in injuries not only of soft parts but of bones and periosteum and as said sprains." [4].

In regard to Guernsey ('keynote') says, "injuries to periosteum, as when one has had a fall or an accident, making it very sore and causing a bruised sensation." [4].

Nash says, "Ruta for back," synovial membrane and sciatica: after manipulating subluxation of pelvis, it seems to be good practice to give a dose or two of Ruta." [6].

Dr. Kent says, "Ruta often suits in various surgical conditions, periosteal trouble from injuries where the flesh is thin over the bone, bruises go away slowly and leave a thickened hardened spot." "A lump in the periosteum as a result of blow with a stick or hammer." In farmers, woodmen, mechanics from holding a hammer or iron instruments hard nodule form in the palm. "over straining of tendons, a nodule will form." [4].

Gradually increasing contractions of flexors so that hand and feet become permanently flexed.

##### **Injury therapeutic**

- Mechanical periosteal injuries
- Sprains, strains, and rupture of tendons
- Bruises of bony parts
- After effects of dislocations and manipulations
- Synovitis
- Especially indicated for injury to tarsal and carpal joints
- Bad effects of overexertion
- Fibrous growths over periosteum

##### **Mechanism of action**

Acts on the fibrous tissue thus preventing complications of fibrosis especially contractures, Analgesic

##### **Recommendation**

- It is always to be given after Arnica for injuries of joints,
- It shall be repeated after symphytum for injuries of bones,
- It is a medicine of choice for complaints of farmers, mechanics, woodmen etc.

**Conclusion**

The conclusion is summarized in following verse -

ABCs are the potentised medicine of magical power,  
 And are extracted with beautiful flower.  
 Arnica is used for blue contusion,  
 And Bellis follows without confusion.  
 Both are used for bleeding internal,  
 Their use is seldom for bruises external.  
 Angiogenesis and phagocytosis will fail never,  
 When AB absorbs the clot forever.  
 Where they act is my next question?  
 Answer is muscles of all proportion.  
 Wound of next type want external aid,  
 When the skin is ragged and torn made.  
 Match of yellow Calendula is here,  
 To stop the suppuration there.  
 It closes the wound with tender care,  
 Because healthy granulation is there to dare.  
 First intension or second intension,  
 Calendula is supreme without contention.  
 Hypericum and Ledum are king and queen,  
 With them Cl. Tetani is not so keen.  
 Hypericum removes the nerve pain,  
 And Ledum warms the dead tissue chain.  
 Both can be alternated with short speed,  
 And are angels of God in battle field.  
 Woody thin branches of Hypericum sways,  
 I am signature of Lord loudly says.  
 Rust colour fur of Ledum is signature,  
 A medicine against tetanus in all literature.  
 Glory of Symphytum leaps and say,  
 I am remedy of fracture is my portray.  
 When beautiful callus on X ray jump,  
 Homoeopathic medicines rejoice in triumph.  
 Heavenly peace of Ruta when dawn,  
 Contractured feet then walk on lawn.  
 Fibrous tissue is no exception,  
 Is also healed with great perfection.  
 Similimum of Ruta is the internal code,  
 To ease the bones with hard node.  
 Healing is completed with cooperation of all,  
 Ruta often follow when Symphytum fall.  
 Ledum work talks aloud,  
 Cures discolouration when Arnica in doubt.  
 They are gift of Nature from Vegetable Kingdom,  
 In Homoeo - Therapeutics of supereme wisdom.

**References**

1. Robbin and Cotran, Pathological Basis of Disease, 10<sup>th</sup> edition, vol.1, Elseviers
2. Robin Reid, Fiona Roberts, Pathology Illustrated, sixth edition, Elseviers.
3. Bell IR, Koithan M. A model for homeopathic remedy effects: low dose nanoparticles, allostatic cross-adaptation, and time-dependent sensitization in a complex adaptive system. BMC Complement Altern Med. 2012;12:191. <https://doi.org/10.1186/1472-6882-12-191>
4. Tyler M L, Homoeopathic Drug Picture, B Jain Publishers pvt ltd, new Delhi; c1995.
5. Nash E.B, Leaders in Homoeopathic Therapeutics, B Jain Publishers pvt ltd, New Delhi; c1989.
6. Choudhuri N.M, A Study on material medica, B jain publishers pvt ltd, New Delhi; c1995.
7. Huges Richard, A Manual of Pharmacodynamics, B Jain Publishers pvt ltd, New Delhi
8. Hamilton Edward, The Flora Homoeopathica, B Jain Publishers Pvt Ltd, New Delhi; c2001.
9. Lippe Adolph Von, Key Notes and Red Line Symptoms of the materia medica, B Jain Publishers pvt ltd, New Delhi; c1985.
10. Burt H. Willium, Physiological Materia Medica, 1st edition, Jaain Publishing Co., New Delhi.
11. Allens H C, Keynotes Rearranged and Classified with leading remedies of the materia medica, Indian Books and Periodicals Publishers, New Delhi; c2021.