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## **Ābzan (Sitz bath) - An effective mode of treatment in 'Ilāj bit Tadbīr (Regimenal Therapy)**

**Mohd Nayab****Abstract**

Unani System of Medicine has four modes of treatment and these are; 'Ilāj bil Ghizā (Dietotherapy), 'Ilāj bit Tadbīr (Regimenal Therapy), 'Ilāj bid Dawā (Pharmacotherapy) and 'Ilāj bil Yad (Surgery). *Ilaj bit Tadbīr* is a mode of treatment which works on the principle of modification or modulation in *Asbāb sitta ḍarūriya* (Six Essential Factors) for gaining health in sick persons or preventing from diseases in normal individuals. 'Ilāj bit Tadbīr includes a number of therapeutic interventions such as *Hijāmah* (Cupping Therapy), *Irsal-i-'Alaq* (Leech Therapy), *Fasd* (Venesection), *Dalk* (Massage), *Nutūl* (Irrigation), *Ābzan* (Sitz bath) etc. Among these, *ābzan* is a novel, simple, safe, economic, non-invasive and effective external mode of treatment for various disorders. It is basically a type of bath in which only buttock and hips are immersed in the water, either plain or medicated (*Joshānda* or *Khaisānda*) for therapeutic purposes. Sometimes, a whole body upto shoulder is immersed into the water. This regimen is used to relieve discomfort and pain in the lower as well as upper parts of the body, for example, haemorrhoids, uterine cramps, inflammatory bowel disease, an episiotomy, infections of bladder, prostate, vagina etc. *Ābzan* also provides relief from itching in genital area. Even though no scientific evidence is available to indicate that *ābzan* can promote faster healing but it is widely described in unani system of medicine for various body ailments.

**Keywords:** *Ilaj bit Tadbīr, ābzan, joshānda, Khaisānda, Sitz Bath, Harārat, Barūdat*

**Introduction**

*Ābzan* (Sitz bath) is a simple, safe, economic, non-invasive and effective external regimen for various disorders. It is basically a type of bath in which only buttocks and hips are immersed into the water with the upper body, legs and feet out of the water. Plain or medicated water (*Joshanda & Khaisanda*) may be used for the therapeutic purpose. Sometimes, a whole body upto shoulder is immersed into the water<sup>[1, 2]</sup>. This regimen is used to relieve discomfort and pain in the lower as well as upper parts of the body, for example, haemorrhoids, uterine cramps, inflammatory bowel disease, an episiotomy, infections of bladder, prostate, vagina etc. *Ābzan* also provides relief from itching in genital area<sup>[2]</sup>. Even though no scientific evidence is available to indicate that *ābzan* can promote faster healing but it is widely described in unani system of medicine for various body ailments.

**Historical Background**

The therapeutic use of water, *Joshānda, Khaisānda* has long history dating back to ancient cultures. *Ābzan* has been included in the most popular and effective therapies.

*Ali Ibn-i-Abbas Majoosi* describes in his book *Kamil-us- sana* that when the time of delivery is near or the female is in labour pain advise her to take *Ābzan ḥār* (Hot Sitz Bath)<sup>[3]</sup>.

*Ibn-i-Sina* has mentioned in his book *Alqanūn-Fiṭ-ṭib* that if the female is suffering from *Usr-e-wiladat*, suggest her to take *Ābzan ḥār* (Hot Sitz Bath)<sup>[4]</sup>.

**Definition**

*Ābzan* is a type of bath in which hips and buttocks are immersed in water, either plain or medicated (*Joshanda, Khaisanda*), for the therapeutic effects.

**Types**

1. *Ābzan ḥār* (Hot Sitz Bath)
2. *Ābzan bārid* (Cold Sitz Bath)
3. *Ābzan mo 'tadil* (Neutral Sitz Bath)
4. *Ābzan murakkab* (Alternate Hot and Cold Sitz Bath)

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**Ābzan Hār (Hot Sitz Bath)**

Ābzan hār is one of the easiest and effective ways to ease the pain and discomfort caused by various diseases. Hot water, *Joshanda/Khaisanda* of specific drugs is used for the purpose of *ābzan hār* resulting in increased tissue temperature. The temperature of the warm water should be between 95°F-105°F/35 – 41 °C. The level of water in the bath tub should not be above the navel. This type of *ābzan* is mostly used worldwide with promising therapeutic effects in various diseases.

**Physiological effects of *harārat* on the body****1. Systemic**

- A. Vasodilatation

**2. Local**

- A. Temperature sensitive nerve endings send impulse to hypothalamus and make the centre aware about the local temperature changes
- B. Increased capillary permeability
- C. Increase blood flow
- D. Increased metabolism

**Therapeutic uses of *harārat***

- a) Increases blood flow
- b) Softens exudates
- c) Decreases pain
- d) Relaxes muscle
- e) Psychological relaxation
- f) Decreases muscle contracture
- g) Improves joint range of motion
- h) Decreases joint stiffness

Physiological effects of *harārat* include pain relief, increases in blood flow and metabolism, and increased elasticity of connective tissues. Increasing tissue temperature stimulates vasodilatation and increases tissue blood flow, which is thought to promote healing by increasing the supply of nutrients and oxygen to the site of injury. The rate of *Istehāla* (metabolism) in local tissue is also increased by *harārat*, which may further promote healing as *Tabi'at Mudabbira-e-Badan* works on healing instead of *Istehāla*. *Harārat* also induces changes in the viscoelastic properties of collagen tissues which can be demonstrated in the mechanism of improvement of range of movement [5].

**Ābzan Bārid (Cold Sitz Bath)**

When *ābzan* is done with cold water, either medicated or plain, it is called *ābzan bārid*. The temperature of this water should not be too low to bear except few conditions where ice-cold water is recommended for the procedure. In such conditions where ice-cold water is indicated, the length of immersion into water should be decreased. *Burūdat* is basically useful in the management of acute injury/trauma, chronic pain, muscle spasm, inflammation, and oedema.

**Physiological effects of *burūdat* on the body****1. Systemic**

- A. Vasoconstriction
- B. Piloerection
- C. Shivering

**2. Local**

- A. Temperature sensitive nerve endings send signals to

hypothalamus

- B. Local vasoconstriction
- C. Decreased capillary refill
- D. Decreased cellular metabolism

**Therapeutic uses of *burūdat***

- A. Decreases inflammation
- B. Relaxes muscles
- C. Decreases the pain by numbing the area
- D. Local anaesthetic effects
- E. Decreases bleeding
- F. Slows bacterial growth

*Burūdat* has multiple physiological effects on injured tissues. Decreasing temperature of the skin and muscle reduces blood flow to the *bārid* tissues by activating a sympathetic vasoconstrictive reflex. The decrease in blood flow, induced by *burūdat*, reduces oedema and slows the delivery of inflammatory mediators, reducing inflammation of the affected area. Decreasing tissue temperature also reduces the metabolic demand of hypoxic tissues, potentially preventing secondary hypoxic damage in injured tissues. *Burūdat* also induces a local anaesthetic effect by decreasing the activation threshold of the tissue nociceptors and the conduction velocity of nerve signals. *Burūdat* also reduces muscle spasm via inhibition of a spinal cord reflex loop [5].

**Ābzan Mo'tadil (Neutral Sitz Bath)**

Normal water in term of temperature, either plain or medicated, is used sometime for the treatment of various diseases. Patients with diabetic neuropathy can use this type of *ābzan* safely.

**Ābzan Murakkab (Alternate Hot and Cold Sitz Bath)**

Several variations of the procedure can be used with different therapeutic effects depending upon the temperature of water and the length of time spent immersed. *Ābzan murakkab* is a combination of *ābzan hār* and *ābzan bārid*, taken into use alternatively. In this procedure, a patient stays in *ābzan hār* for 5 minutes followed by *ābzan bārid* for less than one minute only. The cycle is repeated for atleast five times and finished in *ābzan bārid*. This type of *ābzan* is considered having a soothing effect. A towel soaked in ice-cold water may be used in place of cold water.

**Effects of *Ābzan Murakkab***

It has been suggested that *ābzan murakkab* causes a “pumping effect” due to the cycle of vasoconstriction and vasodilatation, therefore facilitating *Imala-e-Mavad* resulting in removal of the oedematous conditions. *Ābzan murakkab* increases the venous and lymphatic flow of fluids. It is very important to achieve the adequate deep tissue vasoconstriction in order to get the results because any *mādda* which has been stagnant in the tissues, after absorption, needs vasoconstriction to be diverted. Constriction increases the intramural pressure in the blood vessels, causing the fluid to move with the valves in the veins, thereby preventing the backflow of the fluid. This would produce a beneficial effect of minimising the influence of accumulated morbid material at the injured site while the healing process is taking place.

**Manual Operating Procedure (MOP)**

*Ābzan* is frequently prescribed but proper instructions as how to perform it are seldom given to patients. In general, the

water is expected to cover only the perineum and lower pelvis. Immersing other parts of the body in warm water may lead to systemic vasodilatation and decrease circulation to the perineal area. Following are the instructions which should be followed for the procedure of *ābzan*.

1. Take an appropriate sized bath tub and clean it with lukewarm water mixed with bleaching powder followed by rinsing thoroughly.
2. Fill the tub with prescribed liquid upto 2-3 inches.
3. In case of *ābzan hār*, the water should be warm and not too hot to cause burns or discomfort.
4. In case of *ābzan bārid*, the water should be cold, but not too cold to cause discomfort to the patients.
5. Ask the patient to remove the cloth and get into the tub to immerse his perineum into water, bend his legs or dangle them over the side of the tub to keep them out of the water and ensure the perineum is submerged.
6. Ask the patient to stay in water for atleast 15-20 minutes in case of *ābzan hār*.
7. Ask the patient to stay in water for atleast 5-10 minutes in case of *ābzan bārid*.
8. In case of *ābzan murakkab*, ask the patient to stay in hot water for 5 minutes followed by a stay in cold water for less than one minute alternatively and the cycle is

- repeated upto 5 times finishing on *ābzan bārid*.
9. Ask the patient to dry himself with a clean cotton towel
10. Instruct the patient not to rub or scrub the perineum, as this may cause pain and irritation.
11. The procedure is completed by rinsing the bath tub thoroughly.



Fig 1: *Ābzan*

**Indications and Specific Formulations <sup>[6]</sup>**

S. No.	Indications	Name of Drugs	Method
1	<i>Bawaseer-e-Baadi</i> (Haemorrhoids)	Post-e-Anar, Maazu, Sirka	Boil Post-e-Anar and Maazu in water and filter it. Mix Sirka in the filtered water and use it for the patients of <i>bawaseer-e-baadi</i>
2	<i>Bawaseer-e-Damvi</i> (Bleeding Piles)	Zaj, Sibr, Kundur, Dam-ul-Akhwain, Gulnaar, Mameesa	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>bawaseer-e-damvi</i>
3	<i>Istirkha-e-Maq'd</i>	Abhal, Qust, Joz-us-Saroo, Sumbul, Mur, Izkhar	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Istirkha-e-Maq'd</i>
4	<i>Khurooj-e-Maq'ad</i> (Rectal Prolapse)	Gul-e-Surkh, Adas, Makoh, Simaq OR Post-e-Anar, Juft Baloot, Gulnaar, Maazu, Berg-e-Moorad	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Khurooj-e-Miq'ad</i> .
5	<i>Qillat-e-Haiz</i> (Oligomenorrhoea)	Fotanj, Suddab, Mushktaramasheeh	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Qillat-e-Haiz</i>
6	<i>Warm-e-Raham</i> (Metritis)	Roghan-e-Gul	Mix <i>Roghan-e-Gul</i> with water and use for <i>Aabzan</i> in case of <i>Warm-e-Raham</i>
		Lukewarm Water	Use lukewarm water for the <i>Aabzan</i> in the patients of <i>Warm-e-Raham</i>
		Marzanjosh, Berg-e-Maroo (Kanocha), Parsiyaosha, Makoh, Abhal, Mushktaramasheeh, Tukhm-e-Khatmi, Tukhm-e-Kharpaza, Qaisoom, Tukhm-e-Kasoos, Tukhm-e-Halyoon, Tukhm-e-Karafs, Tukhm-e-Khubbazi, Gul-e-Khatmi, Adas Muqashshar, Gul-e-Surkh, Berg-e-Shibbat	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Warm-e-Raham</i> .
7	<i>Sartan-e-Raham:</i>	Berg-e-Khatmi, Karnab, Banafsha, Tukhm-e-Katan	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Sartan-e-Raham</i> .
8	<i>Shiqaq-e-Raham:</i>	Maazoo, Shaa-e-Baloot, Gulnar, Gul-e-Surkh	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Shiqaq-e-Raham</i> .
9	<i>Nafakhat-ur-Raham:</i>	Baboona, Nakhoona, Shibbat, Marzanjosh, Mastagi, Pudina, Suddab, Tukhm-e-Karafs, Baadyaan, Baranjasif, Zeera, Nankhwah	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Nafakhat-ur-Raham</i> .
10	<i>Ikhtenaq-ur-Raham</i> (Hysteria):	Kashim, Tukhm-e-Hulba, Tukhm-e-Katan, Marzanjosh, Qaisoom/Afsanteen	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Ikhtenaq-ur-Raham</i>
11	<i>Inzilaq-ur-Raham</i> (Uterine Prolapse):	Izkhar, Aas, Gul-e-Surkh	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Inzilaq-ur-Raham</i>
12	<i>Waja-ur-Raham</i> (Uterine Pain),	Lukewarm Water	Take lukewarm water and use it for <i>Aabzan</i> in case of <i>Waja-ur-Raham</i>

13	<i>Kharish-e-Miq'ad</i> (Pruritus in Ano):	Lukewarm Water	Take lukewarm water and use it for <i>Aabzan</i> in case of <i>Kharish-e-Miq'ad</i> .
14	Ehtibas-e-Tams:	Shibbat, Marzanjosh, Pudina, Suddab, Baboona, Nakhoona, Sa'tar	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Ehtibas-e-Tams</i> .
15	Kasrat-e-Tams:	Jau Muqashshar, Biranj Biryani, Post-e-Anar	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Kasrat-e-Tams</i> .
16	Kasrat-e-Isqaat:	Sandal Safaid, Beg-e-Neelofar, Habbul Aas, Aqaqiya, Gulnaar, Gul-e-Surkh	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Kasrat-e-Isqaat</i> .
17	<i>Zof-e-Kulliya</i> :	Shibb Zaj	Mix all the medicine in water and warm it. Use this filtered water for the patients of <i>Zof-e-Kulliya</i> .
18	<i>Reeh-ul-Kulliya</i> :	Berg-e-Qinnab, Karam, Shibbat, Hulba, Bazar katan, Baadyaan, Khaare-Khasak, Nakhoona, Baboona	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Reeh-ul-Kulliya</i> .
19	Waja-ul-Kulliya:	Baboona, Shibbat, Tukhm-e-Khatmi, Berg-e-Karnab, Podina	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Waja-ul-Kulliya</i> .
20	Warm-e-Kulliya:	Baboona, Nakhoona, Tukhm-e-Khatmi, Saboos-e-Gundum, Jaw Muqashshar	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Warm-e-Kulliya</i> .
21	Qurooh-e-Kulliya:	Gul-e-Baboona, Berg-e-Neem, Berg-e-Anar, Pamba, Fanj Kusht, Tukhm-e-Khurtum, Khaare-Khasak, Parsiyaosha, Tukhm-e-Khubbazi, Bazar-ul-Banj, Shibbat, Baadyaan, Tukhm-e-Kharpaza, Berg-e-Karnab, Berg-e-Yasmeen	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Qurooh-e-Kulliya</i> .
22	Hisaat-e-Kulliya:	Khaare-Khasak, Baboona, Marzanjosh, Karafs, Karnab, Shibbat, Berg-e-Khatmi, Parsiyaosha	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Hisaat-e-Kulliya</i> .
23	<i>Warm-e-Masana Haar</i> (Cystitis):	Dar-e-Sheeshan, Qaroomana, Shibt, Sa'd, Izkhar, Hamama, Tukhm-e-Katan OR Shaljam, Gokhroo, Karnab OR Banafsha, Berg Neelofar, Baboona, Nakhoona <sup>[7]</sup>	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Warm-e-Masana Haar</i> .
24	<i>Hisaat-e-Masana</i> ():	Bazar-ul-Banj, Shibbat, Katan, Khaare-Khasak, Nakhoona, Hulba, Habbul Qilt, Berg-e-Qinnab, Aftimoon, Berg-e-Neem, Berg-e-Sambhaloo, Gul-e-Palas	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Hisaat-e-Masana</i> .
25	<i>Waja-ul-Masana Haar</i> :	Banafsha, Neelofar, Tukhm-e-Khatmi, Makoh	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Warm-e-Masana Haar</i> .
26	<i>Baul-ud-Dam</i> (Haematuria):	Adas Muqashshar, Post-e-Anar, Beehi, Maazu, Asbatur Ra'ee	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Baul-ud-Dam</i> .
27	Zaheer-e-Sadiq (Dysentery):	Khubbazi Soya Nakhoona Baboona	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>zaheer-e-sadiq</i> .
28	Zaheer-e-Wabai	Ice –Cold water	Use ice-cold water for the <i>Aabzan</i> in the patients of <i>Zaheer-e-Wabai</i> , (Antaki)
29	Is'hal-e-Wabai:	Ice –Cold water	Use ice-cold water for the <i>Aabzan</i> in the patients of <i>Is'hal-e-Wabai</i> (Antaki)
30	Amraz-e-Asbi Yaabis Saada:	Berg-e-Baid, Kahu, Kaddu, Khayar, Berg-e-Kunjad, Berg-e-Khashkhash, Berg-e-Chuqander	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Amraz-e-Asbi Saada</i> .
31	Tashannuj-e-Yaabis:	Banafsha, Gul-e-Neelofar, Khatmi, Gul-e-Surkh Gul-e-Gulharh, Berg-e-Baid, Jau Muqashshar, Gul-e-Hina, Aab-e-Tarbooz, Aab-e-Khayar, Aab-e-Kaddu	Mix <i>Banafsha, Gul-e-Neelofar, Khatmi, Gul-e-Surkh, Gul-e-Gulharh, Berg-e-Baid, Jau Muqashshar, Gul-e-Hina</i> in <i>Aab-e-Tarbooz, Aab-e-Khayar, Aab-e-Kaddu</i> and warm it lightly. Use this lukewarm liquid for <i>Aabzan</i> in cases of <i>Tashannuj-e-Yaabis</i> .
32	Tamaddud-wa-Kuzaz: (Aabzan Hakeem Alwi Khan)	Paicha-e-Buz, Kallah Barrah, Chooza-e-Murgh, Jau-Muqashshar, Lu'ab-e-Sapistan, Kaddu, Baboona, Gul-e-Khatmi, Berg-e-Khurfa, Palak, Ispaghol, Behdana, Aab-e-Baid mushk, Aab-e-Gulab, Aab-e-Anar Sheerein, Aab-e-Beehi Sheerein, Roghan-e-Kaddu, Roghan Tukhm-e-Tarbooz, Roghan-e-Badaam	Boil all the medicine in water and filter it. Use this filtered water for the patients of Tamaddud-wa-Kuzaz
33	<i>Su-e-Tanaffus</i> :	Banafsha, Khatmi	Boil all the medicine in water and filter it.

			Use this filtered water for the patients of <i>Su-e-Tanaffus</i>
34	Zeequnafs,	Lukewarm water	Use lukewarm water for <i>Aabzan</i> in the patients of <i>Zeequnafs</i> .
35	Takhaluss-e-Hijab:	Lukewarm water	Use lukewarm water for <i>Aabzan</i> in the patients of <i>Zeequnafs</i>
36	Jau-ul-Kalb,	Ice –Cold water	Use ice-cold water for the <i>Aabzan</i> in the patients of <i>Jau-ul-Kalb</i> , <i>Zaheer-e-Wabai</i> , and <i>Is'hal-e-Wabai</i> (Antaki)
37	Fuwaq:	Milk	Use milk for the <i>Aabzan</i> in the patients of <i>Fuwaq</i>
38	Yarqan-e-Bohrani:	Gul-e-Neelofar, Gul-e-Kasni, Gul-e-Sada Bahar, Gul-e-Gulharh, Gul-e-Khatmi, Berg-e-Hina, Berg-e-Baid Saada, Berg-e-Kasni, Berg-e-Tamar Hindi	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Yarqan-e-Bohrani</i> Patient should be merged in to the water upto neck.
39	Zaheer-e-Baarid (Dysentery):	Khatmi, Shibbat, Nakhoona, Baboona, Bazar Katan, Makoh	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>zaheer-e-Baarid</i>
40	Ailaoos:	Baboona, Nakhoona, Karnab, Shibbat	Boil all the medicine in water and filter it. Use this filtered water for the patients of <i>Ailaoos</i>

**Contraindications** [8, 9, 10]

1. Acute profuse bleeding
2. Open wounds
3. Pressure sores
4. Acute fever
5. Acute skin infections
6. Contagious skin rashes
7. Diabetic patients with diabetic neuropathy
8. Hypotensive patients
9. Sciezure
10. Thermal nerve deficiency
11. Raynaud's disease

**Complications** [8, 9, 10]

Numbness sensation after *Aabzan* bārid when skin temperature decreases below 59° F, Frostbite (white, waxy, mottled blue skin), Burn, Palpitation, Bleeding

**Conclusion**

The indications and specific formulations mentioned by eminent unani physicians shows the extensive use of *ābzan* for the management of various disorders since time immemorial. On the basis of theoretical description, it can be concluded that *ābzan* seems to be a very effective as well as safe and patient friendly mode of treatment but it is the demand of the hour to validate the claims of ancient unani physicians about the effectiveness of *ābzan* therapy on scientific basis.

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**Author's Statement****Competing Interests**

The author declares no conflict of interest.

**References**

1. Lateef A, Tauzihat Kulliyat Advia, II Edition, Ibn Sina Academy of Medieval Medicine and Science, Aligarh, India. 2004, 232.
2. Jamal MA, Khan MA, Kita but Tadbeer, Al-Farooq. Educational Society and Trust Indore, India. 2013, 14-19.

3. Ali Ibn-e-Abbas. Kamilussana, Jild 2, (Urdu Translation by - Kintoori Gulam Hasnain), Idara kitab-us-shifa, New Delhi. 68-69.
4. Ibn-e-Sina, Al Qanoon fil-tib. Ejaz Publication House, New Delhi. 3(2):1086.
5. Nadler SF, Weingard K, Kruse RJ. The Physiologic basis and clinical application of cryotherapy and thermotherapy for the pain practitioner, Pain Physician. 2004; 7:395-9.
6. Azam Khan, Akseer Azam, Idara Kitab, Shifa. New Delhi. 2011, 172-177, 191-196, 203-209, 257-267, 341-384, 397-433, 437-471, 515-541, 550-576, 621-622, 635-651, 678-681, 682-684, 691-93, 695-700, 704-714, 717-720, 724-26, 729-30, 735-739, 758-784, 787-88, 791-93, 795-96, 799-803, 805-06, 812.
7. Ibn Hubbal Baghdadi, Kitab ul Mukhtarat fit tibb, Central Council for Research in Unani Medicine, New Delhi. 2004; 3:329.
8. Sallis R, Chassay CM. Recognising and treating common cold-induced injury in outdoor sports. Med Sci Sports Exer. 1999; 31:1367-73.
9. Saxena A. Achilles peritendinosis: an unusual case due to frostbite in an elite athlete, J Foot Ankle Surgery. 1994; 33:87-90.
10. Nadler SF, Prybicien M, Malanga GA *et al.* Complications from therapeutic modalities: results of a National survey of athletic trainers. Arch Phys Med Rehabil. 2003; 84:849-53.