

## TIRYAQ-E-ARBA (A POLY HERBAL UNANI FORMULATION) IN FIGHTING AGAINST COVID 19 LIKE CONDITIONS – UNANI PERSPECTIVE

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### ABSTRACT

Coronavirus disease 2019 (COVID-19) is a pandemic disease of modern time with unique and rapid transmission rate and affected almost all the nations without respecting any border. Coronavirus disease 2019 (COVID-19) is arguably the biggest health crisis the world has faced in 21st century. It is an infectious disease and declared pandemic by the World Health Organization. The coronavirus disease 2019 (COVID-19) outbreak, which originated in Wuhan, China, has now spread to 192 countries and administrative regions infecting nearly 800,000 individuals of all ages as of 31 March 2020. Though most infected individuals exhibit mild symptoms including fever, upper respiratory tract symptoms, shortness of breath, and diarrhoea, or are asymptomatic altogether, severe cases of infection can lead to pneumonia, multiple organ failure, and death. Globally, at least 7900 deaths have been directly attributed to COVID-19, and this number is expected to rise with the ongoing epidemic. This is particularly crucial as the current outbreak involves a new pathogen (SARS-CoV-2), on which limited knowledge exists of its infectivity and clinical profile. Research is in progress on therapeutic efficacy of various agents including anti-malarials (Chloroquine and Hydroxychloroquine), antiviral drugs, and convalescent serum of recovered patients. Unani system of medicine is one of the traditional systems of medicine which is being explored for providing preventive, supportive and rehabilitative care to patients. *Unani* system of medicine has a detailed description of drugs that are utilized in many infectious diseases, including respiratory infections. Immune response is essential to eliminate virus and to preclude disease progression to severe stages. Therefore, it is important to summarize the evidence regarding the preventive measures, control options such as immune-stimulator and prophylactic treatment in *Unani* medicine against Covid-19. This review summarizes various pharmacological actions of *Unani* formulation *Tiryaaq-e-Arba* in *Unani* literature and various reported pharmacological activities which can possibly provide prevention, control and reduction of complications of this deadly disease.

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### INTRODUCTION

Epidemics of infectious diseases have been documented throughout history. Ancient Greece and Egypt described epidemics of small pox, leprosy, tuberculosis, meningococcal infections and diphtheria.<sup>1</sup> *Hippocrates* was among the first to record his theories on the occurrence of disease in his treatise "Air, water, and places", *Hippocrates* dismissed supernatural

explanations of disease and instead attributed illness to characteristics of the climate, soil, water, mode of life, nutrition and surrounding of the patient.<sup>2,3,5</sup> Severe acute respiratory syndrome coronavirus-2 (SARSCoV-2) is a newly identified virus that differs from severe acute respiratory syndrome coronavirus (SARS-CoV) and Middle East respiratory syndrome coronavirus (MERS-CoV) but can cause similar symptoms associated with pneumonia.<sup>6,7</sup> This viral disease was named "COVID-

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19” by the World Health Organization (WHO) and was first recognized in Wuhan, Hubei Province, in China in December 2019 and may originate from eating wildlife, an established tradition in the oldest of human cultures. The disease is thought to be mainly transmitted through droplet infection, touching and shaking hand with infected individual may also transmit the infection. Researcher has also believed that virus may be transmitted via fluids, i.e. mucus.

Symptoms appear after an incubation period of two weeks. During this week virus replicates in the upper and lower respiratory tracts. Common symptoms in infected individual include fever, cough, sore throat, runny nose, breathlessness and the lesion in the lungs.<sup>8,9,10,11,12,13,14</sup> Clinical diagnosis of Covid-19 is mainly based on epidemiology, history, clinical features and some diagnostic tests. Commonly used techniques for SARS-COVID-19 nucleic acid are RT-PCR. Apart from this we can predict it by *Nabz* (Pulse) and *Baraaz* (Stool), Usually *Nabz* becomes *Sagheer wa Mutawatir*, and the *Baraz* (stool) of infected person has foul smell.<sup>15,16</sup>

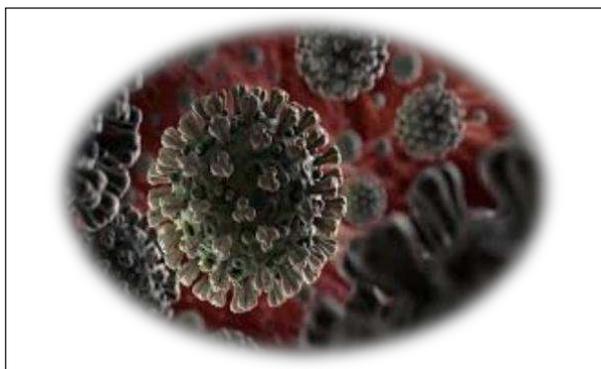


Figure 1: Corona Virus<sup>17</sup>

#### UNANI CONCEPT

As per *Unani* medicine exact term or disease is not mentioned in *Unani* literature but it can be explained under the heading of *Humma-e-Wabaiya* Symptoms of *Humma-e-Wabaiya* and covid-19 looks very much similar.<sup>15,18</sup> *Hummae-Wabaiya* is the type of catastrophic fever which occurs due to unavoidable changes in the air (qualitatively or quantitatively). As a result air become impure and finally it give rise to abnormal temperament of *Rooh* which subsequently results into morbidity and mortality. As fresh and pure air is essential for health, any contamination in the air may affect the health of any person and it depends on the intensity of contamination. *Zakariya Razi* (865–925 CE) stated in his book *Kitab al Mansoori* that most epidemics occur during the autumn season, mostly when previous summer season was humid, and the wind is still<sup>15</sup>, *Razi* in the 15th volume of

his treatise *Kitab al-Hawi* (The Comprehensive Book of Medicine), also stated that change of temperature makes people more susceptible to respiratory infections and stressed this fact and stated that 'there will always be something common in patients of epidemics, whether a place, food, drink or travel history'<sup>19</sup>. Furthering the view, *Ibn Sina* (980-1035 CE) stated that epidemics spread from one person to another, and one city to another (*Sina*, 1878). During the 14th-century plague pandemic, Arabian scholar *Ibn Khatib* (1313–1374 CE) stressed that 'most of the people who come in contact with a plague victim will die'. In the same context, he states, 'the disease spreads through clothes, utensils and jewellery'.<sup>20,21</sup> In the same vein, this statement stresses on social distancing and isolation, two important aspects of prevention during COVID 19 pandemic.

In *Unani* system of medicine, “Decreased Immunity Disorders” was documented by most prominent physicians in classical *Unani* literature. *Unani* medicine is rich with formulations useful in the prophylactic and therapeutic management of *Nazla-e-wabaiya* (epidemic influenza) and other flu like symptoms. In *Unani Tib*, “*tabiyat*” is considered as a real healer. In this regard, “*majoosi*” wrote quoting “*Hippocrates*” that “*tabiyat*” is the real restorer of health and curer of disease. If the *tabiyat* is strong enough and has not succumbed to the infection, a good and healthy sign is seen and that is the production of specific humours (immunoglobulins) against the microorganisms to get rid of the infection. The humours of these persons are similar to the putre air so these people are susceptible to *wabai amraz*.<sup>22,23,24</sup> *Unani* physicians had mentioned different diet schedule and preventive drug regimes including the use of *muharrikat* and *tiryaaqat* to combat from these conditions incurred from weak *tabiyat*. *Tiryaaq Arba* is an age old pharmacopeial *Unani* compound formulation and is used in immune-compromised, weak and feeble patients and also this formulation is being used by old *Unani Hakims*, for treating catarrh and recurrent infections.<sup>25</sup>

#### PREVENTION:

*Unani* physicians recommended for open and airy house with proper ventilation, it is advised to keep patient in cold place, sprinkle garlic and onion at the walls of the house. Elimination of *fuzlaat* (waste material) is necessary in order to maintain health and for this purpose venesection is advised. It is advised to take less amount of meal. *Unani* physicians recommended use of laxatives and diuretics which beneficiates during the initial phase of epidemic. Isolation of infected person from healthy person is mandatory. Patient as well as health care workers should be asked to wear a surgical mask. Unnecessary traveling should be avoided at this time.<sup>26,27</sup>

In *Unani* classical literature several single drugs as well compound formulations have been used for several decades which possess immune-stimulatory, antipyretic, expectorant as well as antiviral properties. *Tiryaaq-e-Arba* is one of the *unani* formulations which has immune-stimulatory activity and its ingredients have expectorant and antipyretic, anti viral activities. *Tiryaaq e Arba* is a well-documented and well-known drug. *Tiryaaq e Arba* was used by Avicenna and Galen in healthy persons as well as in patients during epidemics.<sup>28,29</sup> *Hakim Azam Khan* has mentioned that *Tiryaaq-e-Arba* is a good anti-inflammatory, anti flatulent, resolvent and antidote. It is effectively used in the control and treatment of infectious diseases during the epidemic outbreaks such as cholera, plague, *nazlae muzmin* etc. *Hakim Ghulam*

*Jeelani* has mentioned that *Tiryaaq Arba* strengthens Heart and Brain.<sup>30,31</sup>

**DESCRIPTION OF TIRYAAQ-E-ARBA:**

The literal meaning of *Tiryaaq* is antidote and *Arba* is an Arabic word, which stands for four. *Tiryaaq e Arba* is a compound Unani formulation, consisting of four *mufrad* (single) drugs namely *Zarawand Taweel* (*Aristolochia longa*), *Habbul Ghaar* (*Laurus nobilis*) *Pakhanbed* or *Juntiana romi* (*Bergenia ligulata*) and *Murmaki* (*Commiphora myrrha*). It is also known by the name of “*Tiryaaq Sagheer*” as per the book “*Bayaz Khas/ ilajul amraz*” of *Hakim Shareef Khan*, translated by *Hakeem Mohammad Kabiruddin*<sup>32</sup>. The composition of the formulation is as follows:<sup>33</sup>

**Table 1: Formula of Preparation of Tiryaaq e Arba.**

S. No	Name	Botanical Name	Quantity
1	<i>Juntiyana / Pakhanbed</i>	<i>Gentiana lutea</i> L. / ( <i>Bergenia ligulata</i> )	1 part
2	<i>Zarawand Taweel</i>	<i>Aristolochia longa</i> L.	1 part
3	<i>Mur Makki</i>	<i>Commiphora myrrha</i> (Nees) Engl.	1 part
4	<i>Habb ul Ghar</i>	<i>Laurus nobilis</i> L.	1 part
5	<i>Honey or Sugar</i>		Q.S



**Figure 2: Tiryaaq e Arba**<sup>34</sup>

**Pharmacological Studies on ingredients of Tiryaaq-e-Arba:**<sup>35</sup>

*Tiryaaq-e-Arba* is a well-known formulation for its different pharmacological activities as antiviral, analgesic, anti-inflammatory, anti-spasmodic etc. Some of the known pharmacological actions which are mentioned in Unani literature and proven scientifically are mentioned below:

1. *Juntiyana* (*Gentiana lutea* L.):
  - Anti-inflammatory and wound healing
  - Antioxidant activity
2. *Habb ul Ghar* (*Laurus nobilis* L.):
  - Antioxidant activity:
  - Antiviral Activity
  - Immunomodulatory activity
3. *Zarawand Taweel* (*Aristolochia longa* L.)
  - Antioxidant activity
  - Immunomodulatory activity
4. *Murr Makki* (*Commiphora myrrha* (Nees) Engl.)
  - Antioxidant activity
  - Anti-inflammatory activity

### THERAPEUTIC USES

*Hakim Azam* khan has mentioned that *Tiryaaq e Arba*<sup>30</sup> is a good anti inflammatory, anti flatulent, resolvent and antidote.<sup>31</sup> It is effectively used in the control and treatment of infectious diseases during the epidemic outbreaks such as cholera, plague, *nazlae muzmin* etc. *Hakim Ghulam Jeelani* has mentioned that *Tiryaaq Arba* strengthens Heart and Brain. Effective antidote for poisons and toxins.<sup>36</sup> *Ibne sina* has mentioned in *Al Qanoon* that *Tiryaaq Arba* is effective antidote against scorpion bites, spider poison and in treating all cold diseases.<sup>37</sup> Its action includes *Dafe Sumoom*, *Dafe Tashannuj*, *Mufattehe Sudad*, *Mudirre Baul*. It's therapeutically used in *Tasammum*, *Tashannuj*, *Qulanj*, *Usre waladat*, *Tasaddude Urooq* and *Istisqa*<sup>38</sup> *Hakim Akbar Arzani* has mentioned in his book *Qarabadin e Qadri*<sup>39</sup> that *Tiryaaq Arba* is an antidote for scorpion bite and all animal poisons. It dissolves the *ghaleez hawa*, opens. It corrects liver and spleen. It is a first and oldest *Tiryaaq* prepared by *Indru makhiz* which is *Garm*<sup>3</sup> and *Khushk*<sup>2</sup>. Its life span is 2 years.<sup>39</sup> *Hakim Mohd. Shariff Khan*<sup>40</sup> in his book *Bayaze khaas al maroof ilajul amraaz* has mentioned that *Tiryaaq Arba* is also known as *Tiryaaq sagheer* and is *Garm*<sup>2</sup> and *Khushk*<sup>2</sup>. Antidote against all poisons including snake, scorpion and spider bites

*Mizaj*: *Garm*<sup>3</sup> and *Khushk*<sup>2</sup>, *Garm*<sup>2</sup> and *Khushk*<sup>2</sup>.  
Dosage: 6 gm BD

**Table 2: Description of Ingredients of Tiryaaq e Arba.**

S. No	Ingredients	Actions	Therapeutic Uses	Temperament	Parts used:
1.	<i>Habbul ghar</i> ( <i>Laurus nobilis</i> )	antifungal, antibacterial, anti-inflammatory, antioxidant, carminative, aromatic, diaphoretic, digestive, diuretic, emetic and stomachic properties <sup>47</sup>	Treats <i>Suda e balghami</i> , strengthens memory power, cures epilepsy, facial paralysis and hemiplegia. Effective in asthma, conductive deafness and tinnitus. Melts calculi and treats dysuria and dribbling of urine, antidote for all animal poisons, resolves inflammation of the chest and lung and treats all cold inflammations of the chest. Treats chronic cough and avoids falling of secretions and morbid matter on lungs. <sup>48</sup>	<i>Garm</i> <sup>3</sup> wa <i>Khushk</i> <sup>3</sup> (Hot <sup>3</sup> and Dry <sup>3</sup> ) and according to some <i>Garm</i> wa <i>Khushk</i> in <sup>2</sup> degree. <sup>48</sup>	Fruit and seeds <sup>47</sup>

### METHOD OF PREPARATION OF TIRYAAQ ARBA

*Tiryaaq* is a semi solid preparation which comes in *Majoon* category. For any semi solid preparation, *Qiwam* (base) of different consistencies (tar) is generally made. It depends on the nature of ingredient drugs to be used. The *qiwam* is generally made by adding *Aab* (water), *Araq* (distillate) or *Aab e samar* (fruit juices), etc in any of the bases of purified honey, sugar, candy or jaggery etc and boiled over a low heat till it acquires a required consistency. The bases are generally purified by adding *Aab e lemu* (lemon juice), *Satt e lemu* (lemon extract), or *Shibb e yamani* (Alum) before making *qiwam*. Afterwards the ingredients are mixed in *qiwam* to prepare *Tiryaaq*. *Qiwam* for *Tiryaaq* is of two tar (consistency). All the dry ingredients, after being ground together and sieved through 80-mesh, are made into a *Sufoof* (powder). When the proper *qiwam* (consistency) forms, the medicinal *sufoof* (powder) is gradually added to it during stirring till both mixes. *Tiryaaq* is preserved in glass jar.<sup>41,42,43,44</sup> *Tiryaaq-e-Arba* has *Dafa e Sumoom* (antidote) and *Dafa e Tashannuj* (anti-spasmodic) properties and is used in the dose of 3-5 gm with lukewarm water.<sup>45,46</sup>

The ingredients of *Tiryaaq e Arba* has various Therapeutic uses and activities related to COVID 19 infection. The detailed description is as follows:

2.	<i>Pakhan bed romi</i> <sup>49</sup> ( <i>Bergenia ligulata</i> )	<i>Muqawie badan</i> (general tonic), <i>Muqavviye meda</i> (strengthens stomach), <i>Kasire riyah</i> (carminative), <i>Mudir baul o haiz</i> (diuretic and emmenagogue) and <i>Tiryaqe samoom</i> (antidote for poisons). <sup>48</sup>	Effective antidote in snake and scorpion poisons, useful in the treatment of <i>Zoafe meda</i> (stomach weakness), <i>zoafe masana</i> (bladder weakness) and <i>darde meda</i> (stomach ache). Useful as a diuretic, emmenagogue and also as an abortifacient drug. <sup>50</sup>	<i>Garm<sup>3</sup> wa Khushk<sup>3</sup></i> , according to some <i>Garm<sup>3</sup> wa Khushk<sup>2</sup></i> <sup>50</sup>	Root <sup>50</sup>
3.	<i>Mur mukki</i> <sup>51</sup> ( <i>Commiphora myrrha</i> )	<i>Dafae tafoon</i> (antiseptic), <i>Mujaffif</i> (absorbent), <i>Jaali</i> (detergent), <i>Kasire Riyah</i> (antiflatulent), <i>Muqawie Meda</i> (strengthens stomach), <i>Khatile Kirme Shikam</i> (antihelminthic), <i>Munaffise Balgham</i> (expectorant), <i>Muhalil</i> (anti inflammatory) and <i>Mufatteh</i> (lithotriptic) <sup>52</sup>	Useful in indigestion and to kill and expel intestinal worms, asthma, cough, dryness and hoarseness of voice, upper respiratory infections, rheumatoid arthritis, gout and sciatica. Helps in dissolving <i>balghami</i> inflammations <sup>48,53</sup>	<i>Garm<sup>3</sup> wa Khushk<sup>3</sup></i> (Hot <sup>3</sup> and Dry <sup>3</sup> ) <sup>51</sup>	Leaves <sup>51</sup>
4.	<i>Zaravand Taweel</i> <sup>51</sup> ( <i>Aristolochia longa</i> )	Tonic, stimulates uterus, reduces inflammation <sup>51</sup> , control bacterial infection and promotes healing <sup>51</sup> emmenagogue, antiseptic, odontalgic, sudorific, antihelminthic <sup>51</sup>	It's an antidote for plants and animal poisons. It absorbs the secretions and resolves cold inflammations, removes. <i>Balgham</i> , resolves obstructions, melts calculi, glitters the facial skin, removes flatulence, brings about urination and menstruation. It checks chills and rigors in fevers and resolves the inflammation in haemorrhoids. Strengthens visceral organs and resolves the inflammation of spleen and splenomegaly. <sup>51</sup>	Hot <sup>3</sup> & Dry <sup>2</sup> , Hot <sup>2</sup> & Dry <sup>3</sup> Hot <sup>3</sup> & Dry <sup>3</sup>	Roots, leaves, stem and flowers <sup>54</sup>

**REFERENCES:**

1. **Watts S.** Epidemics and history: Disease power and imperialism. New haven, Conn: Yale University press; 1997.
2. **Ruffer MA, Ferguson AR.** Note on an eruption resembling that of variola in the skin of a mummy of the twentieth Dynasty (1200-1100 B.C). *J Patho Bacteriol* 1911; 15:1-4p.
3. **Temkin O.** Hippocrates in a world of Pagans and Christians. Baltimore, Md: John Hopkins University press: 1991.
4. **Adams F.** The genuine works of Hippocrates, Francis Adams Translation. Baltimore, Md: Williams and Wilkins; 1939.
5. **Sigerist HE.** The great Doctors. New York: WW Norton and company: 1933.

6. **Perlman S.** Another Decade, another Coronavirus. *N Engl J Med.* 2020.
7. **Wang C, Horby PW, Hayden FG, Gao GF.** A novel coronavirus outbreak of global health concern. *Lancet.* 2020.
8. **Fauci AS, Kasper DL, Hauser SL, Longo DL, Jameson JL, Loscalzo J.** Harrison's Principles of Internal Medicine. 20<sup>th</sup> ed. New York: McGraw Hill education, 2019; 535.
9. **Vellingiri B, Jayaramayya K, Iyer M, Narayanasamy A, Govindasamy V, Giridharan B, Ganesan S, Venugopal A, Venkatesan D, Ganesan H, Rajagopalan K.** COVID-19: A promising cure for the global panic. *Science of the Total Environment*, 2020 Apr 4: 138277
10. **Cortegiani A, Ingoglia G, Ippolito M, Giarratano A, Einav S.** A systematic review on the efficacy and safety of chloroquine for the treatment of COVID-19. *Journal of critical care*, 2020 Mar 10.
11. **Kakodkar P, Kaka N, Baig MN.** A Comprehensive Literature Review on the Clinical Presentation, and Management of the Pandemic Coronavirus Disease 2019 (COVID-19). *Cureus*, 2020 Apr; 12(4).
12. **Rocklov J, Sjodin H, Wilder-Smith A.** COVID-19 outbreak on the Diamond Princess cruise ship: estimating the epidemic potential and effectiveness of public health countermeasures. *Journal of travel medicine*, 2020 Feb 28.
13. **Li G, Fan Y, Lai Y, Han T, Li Z, Zhou P, Pan P, Wang W, Hu D, Liu X, Zhang Q.** Coronavirus infections and immune responses. *Journal of medical virology*, 2020 Apr; 92(4):424-32.
14. **Misra DP, Agarwal V, Gasparyan AY, Zimba O.** Rheumatologists' perspective on coronavirus disease 19 (COVID- and potential therapeutic targets. *Clinical Rheumatology*, 2020 Apr 10: 1.
15. **Khan MA.** Al-Akseer (Urdu translation by kabeeruddin M). Vol 2. New Delhi: Ejaz publication house, 2003; 916- 20.
16. **Peeri NC, Shrestha N, Rahman MS, Zaki R, Tan Z, Bibi S, Baghbanzadeh M, Aghamohammadi N, Zhang W, Haque U.** The SARS, MARS and novel coronavirus (COVID-19) epidemics. The newest and biggest global health threats: what lessons have we learned? *International journal of epidemiology*, 2020; feb 22.
17. <https://www.google.com/search?q=coronavirus+image&rlz=1C1EXJR>
18. **Kabiruddin HM.** Hummiyat-e-Qanoon New Delhi: CCRUM, 2009.
19. **Razi Z, Kitab al-Hawi,** Central Council for Research in Unani Medicine, New Delhi, 2008; pp. 309-318.
20. **Samarqandi N,** Al-asbab wa-Alam'at (Kabiruddin Urdu translation), Aijaz Publishing house, New Delhi, 2007; pp. 499- 506.
21. **Ober WB, Aloush N,** The plague at Granada, 1348-1349: Ibn AlKhatib and ideas of contagion, *Bulletin of the New York Academy of Medicine*, 1982; 58(4):418-424
22. **Ibn Sina.** Al Qanoon fil Tib. (Urdu translation by Kantoori GH). New Delhi: Idara Kitabul Shifa; 2007.327, 1205-07.
23. **Jurjani I,** Zakheera Khawarzam Shahi. (Urdu translation by Khan HH). Vol 5. New Delhi: Idara Kitabush Shifa; 2010. 93-5p.
24. **Majusi AIA.** Kamilus Sanaa. Vol.2. (Urdu translation by Kantoori GH) New Delhi: Idara Kitabush Shifa; 2010.18- 84,172, 226,245-47,450-57p.
25. <file:///Basavarah%20S%20Bagli%20Thesis%20final.pdf>
26. **Arzani, M. Akbar.** Tibb-e-akbar (Urdu translation by hakeem M. Hussain), IdaraKitab-u- Shifa, Kucha Chalan New Delhi, P.6 72-74.
27. **Sahin AR, Erdogan A, Agaoglu PM, Dineri Y, Cakirci AY, Senel ME, OKyay, Tasdogan AM.** 2019 Novel Coronavirus(COVID-19) Outbreak: A Review of the Current Literature. *EJMO*, 2020; 4(1): 1-7.
28. **Ismail J.** Vol. 5. New Delhi: Kitab al Shifa; 2010. Zakhira khwarzam Shahi; p. 94.
29. **Kabeeruddin M.** Lahore: Siddiqui Publications; 1921. Bayaze Kabeer; p. 12. 36.
30. **Hakeem Azam Khan,** Mukhzan ul mujarribat; (an Urdu translation known as Qarabadeene Azam by Maulvi Azmat Ali Hasrat Lucknawi):Azaj publication house: New Delhi:1996:25.
31. **Jeelani G.** Makhzanul Murakkabaat. New Delhi: Aijaz Publishing House;1995:27.
32. **Arzani A.,** Qarabadeen Qadri, Aijaz publishing house, New Delhi, 1998; pp. 511. 11
33. Anonymous, National Formulary of Unani Medicine, Ministry of Health and Family Welfare, Dept. of AYUSH, New Delhi, part (1):154.

34. <https://www.google.com/search?q=tiryaq+e+arba+images&tbm=isch&ved>
35. **A.A. Khan, F. Bashir, J. Akhtar.** Tiryaq e arba: A classical Unani Formulation to boost immunity. *Journal of Drug Delivery & Therapeutics*. ISSN: 2250-1177 .2020; 10(4-s):259-263.
36. **Ibn Sina.** Al Qanoon fit Tib (Urdu Translation by Kantoori GH). Vol.1-5. New Delhi: Idara Kitab ush-Shifa; YNM: 1464.
37. National formulary of unani medicine, part-1, first reprint, GOI. Ministry of Health and Family Welfare, dept of AYUSH, New Delhi: CCRUM; 2006: 154. 80.
38. **Arzani A.** Qarabadeene Quadri. Aijaz publishing house: New Delhi : 1998: 511. 81.
39. **Khan MS.** Bayaze khaas al Maroof Ilajul Amraaz (Urdu translatable Hyderabad: ion by Kabeeruddin M). Aezaj publishing house: New Delhi:2006:796.
40. **Kabeeruddin M.** Bayaze Kabir.Vol.2. 15th Edition; Hikmat book depot: Hyderabad 1977-78:16.
41. **Arzani A, Meezan ul Tib** (Urdu), 1st Edition: pp-178-81,756. 13.
42. **Kabeeruddin HM,** Al Qarabadeen, Central Council for Research in Unani Medicine, New Delhi, 2006; pp-1212.
43. **Kabeeruddin HM,** Al Qarabadeen-Volume II, Malik son's publishers, Faisalabad, YNM; pp-413
44. **Kabeeruddin HM,** Sharah Asbab-Volume III, Shaukat Book Depot, Gujrat, YNM; pp-180-186
45. **Jurjani A,** Zakhira Khwarzam Shahi (Hadi Husain Khan Urdu Translation), Munshi Nawal Kishore, Lucknow, 1878; 3(10): 1796.
46. **Anonymous,** Essential Drugs List-Unani Medicine, Ministry of AYUSH, New Delhi, 2013; pp. 2-4
47. Accessed from Bay (*Laurus nobilis*) Garden guides <http://www.gardenguides.com/442-nay-laurus-nobilis.html>
48. **Colonel K.R.Kirtikar.** Indian medicinal plants with illustration. 2nd Edition. Vol-9. Deharadun: oriental enterprises; 2003:2927-2930.
49. Accessed from Jain and Gupta, 1962; Bhat *et al.*, 1974 [www.himalayahealthcare.com/pdf\\_files/cystone008.pdf](http://www.himalayahealthcare.com/pdf_files/cystone008.pdf) cited on 2012 April 24
50. **Kabeeruddin M.** Mukhzunal Mufradat. Tibbiya college Delhi. 163.
51. Accessed from <http://envis.frlht.org/trade> , Cited on 2012 Jan 23.
52. **Kabeeruddin M.** Kulliyate Qanoon (Urdu Translation) Vol.1. New Delhi: Aijaz Publishing House; 2007: 20-56.
53. **Kabeeruddin M. Mukhzunal Mufradat.** Faisal publications: New Delhi: 2000: 225.
54. Accessed from <http://www.prcupcc.org/herbs/herbsl/longbirthwort.htm>, Cited on date 29.12.2011.