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Iran's medicinal plants effective on fever in children: A review

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ABSTRACT

Fever is an important very prevalent disease in children. Fever is developed in the body during response to releasing internal pyrogenic agents throughout infections, malignancy, and inflammatory and rheumatic processes as well as external pyrogenic agents including microbes and toxins. In Iran, medicinal plants have long been used to treat diseases, and fever have been commonly treated with medicinal plants, as well. Therefore, this review article sought to report the medicinal plants used to treat fever in children. In this study, the key words including fever, children, medicinal plants, traditional medicine, and Iran were used to search in the databases Web of Science, PubMed, Scopus, International Science Citation Center, and Magiran, and the articles of interest were retrieved. The medicinal plants Matricaria recutita, Achilleamil lefolium, Sambucus nigra, Tilia cordata, Hyssopus officinalis, Allium sativum, Lavandula officinalis, and Mentha piperita were reported to have refrigerant properties. The antipyretic medicinal plants in the present study could relieve the intensity of fever in children and play a refrigerant role by means of the effective substances with antioxidant, antimicrobial, and anti-inflammatory properties through eliminating the involved factors of fever happening.

Key words: Medicinal plants, Children, Fever, Traditional medicine, Iran

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INTRODUCTION

Diseases are prevalent among children, which is particularly important [1-8]. One of the most important prevalent diseases in children is fever. Fever is referred to the increase in the body temperature to over 37°C, which is controlled by anterior hypothalamus [9]. Fever happens in the body as a result of responding to releasing internal pyrogenic agents during infections and inflammatory, rheumatic, and malignant processes and also external pyrogenic agents including microbes and toxins. Fever is a common and important symptoms of most infectious diseases. In addition to microbial agents, immunological ones could cause heightening of the body temperature through releasing internal pyrogenic substances, as well [10]. Studies have indicated that children's fever is one of the most important reasons for parents' referring pediatric centers for health care [11]. The children with fever feel unpleasant and could experience red heat in the body and face and even chill. Therefore, not only parents may become worried but also therapist may feel too sensitive and pay too much attention to the children [12]. Therapies to control a feverish child include keeping his/her cool by a variety of methods such as lukewarm water with no other additives, wearing less clothes, feeding liquids to him/her for hydration, and keeping the surrounding cool.

However controlling the body temperature and administering appropriate and sufficient antipyretic pharmacotherapies are some other healthcare measures to control fever [13].

Medicinal plants have been demonstrated as pharmaceutically effective throughout frequent use by native people and also by experimental and clinical research over time [14-32]. These plants are rich in antioxidant, phenolic, and flavonoid compounds, tannins, anthocyanins, and some other bioactive substances [33-41]. Therefore, medicinal plants are a natural pharmaceutical source for people's use thanks to the effective substances they contain [42-49]. People believe in the therapeutic effects of the medicinal plants and use them for many diseases [50-61]. In Iran, medicinal plants have long been used to treat many diseases, and common cold has been commonly and frequently treated with medicinal plants, as well. Therefore, in this review article, we seek to report the medicinal plants used to treat common cold in children.

MATERIALS AND METHODS

In this review article, the terms such as fever, children, medicinal plants, traditional medicine, and Iran, both separately and combined, were used to search in the databases of Web of Science, PubMed, Scopus, Islamic World Science Citation Center, and Magiran and the relevant articles were detected. Duplicate articles and the article in non English languages were excluded from analysis.

RESULTS

In Iran eaght medicinal plants *Matricariarecutita, Achilleamillefolium, Sambucusnigra, TiliaCordata, Hyssopusofficinalis, Allium sativum, Lavandulaofficinalis and Menthapiperita,* are used to treat fever in children. Table 1 gives further details regarding these plants.

Table 1. The medicinal plants effective on fever in children

Number	Scientific name	Family name	Persian name	Effect
1	*Matricariarecutita*	Asteraceae	Babouneh	Drinking its tea is sudorific and fever-relieving in children because of antimicrobial and diaphoretic properties.
2	*Achilleamillefolium*	Asteraceae	Boumadaran	This plant is antimicrobial and antioxidant and is used to relieve fever in children. A teaspoon of the plant is brewed in a cup of water for children under three years.
3	*Sambucusnigra*	Adoxaceae	Aghti	If brewed, it could relieve the fever due to influenza in children.
4	*TiliaCordata*	Tiliaceae	Zirfion	The tea of this plant is used to treat the fever due to influenza.
5	*Hyssopusofficinalis*	Laminaceae	Zoufa	If brewed, this plant helps to relieve fever in children.
6	*Allium sativum*	Amaryllidaceae	Sir	If boiled, this plant is fever-relieving in children.
7	*Lavandulaofficinalis*	Lamiaceae	Ostokhodous	Fever-relieving in children
8	*Menthapiperita*	Lamiaceae	Pouneh	Fever-relieving in children

DISCUSSION

Some medicinal plants have antibiotic and antiviral effects and are used to treat fever and infection in children. In this review article aimed to identify Iran's medicinal plants used to treat fever in children, *M. recutita, A. millefolium, S. nigra, T. cordata, H. officinalis, A. sativum, L. officinalis,* and *M. piperita* were reported to have refrigerant effects in children.

M. recutita contains high amounts of phenolic compounds and tannins and its antimicrobial effects have been confirmed in different studies. Sesquiterpenes are also found in *M. recutita*. Most sesquiterpene lactones are non-toxic and taste bitter. These compounds give anti-inflammatory and antibacterial effects to this plant [62-64].*Achillea*genus consists of approximately 140 perennial herbs. Monoterpenes, diterpenes, triterpenes, sesquiterpenes, and flavonoids are identified in the plants of this genus. The flowering shoots of *A. millefolium* are used for digestive problems, fever management in the common cold and influenza, and wound healing in the traditional medicine. Further, antioxidant and anti-inflammatory properties have been reported for *A. millefolium* in different studies [65-69]. The bark, flowers, fruit, leaves, and rhizomes of *S. nigra*, which are used, mainly contain polyohenols (anthocyanins, flavonols, phenolic acids, and proanthocyanidins). Terpenes and lectins have also been found in this plant. *S. nigra* has also exhibited antimicrobial effects such as anti-influenza virus, in addition to

exerting antioxidant properties [70-73].*T. cordata* volatile oil could inhibit certain pyrogenic agents, microbial infections, and prevent fever happening by means of its antimicrobial properties [74]. In *H. officinalis* oil, there are pinocarvone, β-pinene, and cis-pinocamphone. *H. officinalis*has exhibited significant antioxidant effects because of flavonoid compounds [75,76]. *A. sativum* exerts several therapeutic effects such as antioxidant, anti-inflammatory, and antimicrobial by containing phenolic compounds, flavonoids, and proanthocyanidins[77,78].*L. officinalis* commonly known as Lavender or UstuKhuddoos has been used for a long time in Iranian traditional medicine for some disorders as antidepressive, antispasmodic, sedative, diuretic, antiflatulent, antiemetic, anticonvulsant, and antibacterial as well as a general tonic. The volatile oil of *L. officinalis* which is obtained from its flowering shoots is associated with antioxidant and antibacterial properties of this plant [79-81].*M. piperita*, in fresh and dried forms, has been offered as a natural antioxidant source. The main compounds of this plant include terpene compounds such as menthol, menthol, and menthy acetate. Flavons, flavonones, and phenolic acids are also found in this plant. Peppermint leaves contain some antioxidant vitamins such as ascorbic acid and carotenoids. Modern pharmacology research has indicated that the entire herb of *M. piperita* possesses anti-inflammatory, antiallergenic, antiviral, and antibacterial activities. For such properties, the compounds of this plant are used in many of the anti-cold drugs [82,83]. Numerousness of the plants of this review study have anti-microbial activity of important infectious diseases[84-101]. As phytochemical and experimental studies on the antipyretic plants for children indicate, these plants that contain several effective substances, promising antioxidant, antibacterial, and anti-inflammatory properties for them, could relieve fever in children and play refrigerant role through eliminating the involved factors.

REFERENCES

[1] SHAhmadipour, K Ghadiri, O AmanOllahi, H Babaei. *J Am Sci*.**2012**;8(11):80-82.
[2] SHAhmadipour, AMohsenzadeh, K Shahkarami and Mohamadzadeh S. *ARRB***2015**;6(2): 142-146.
[3] SHAhmadipour and A Mohsenzadeh. *Annual Research & Review in Biology*.**2015**; 8(1): 1-6.
[4]SH Ahmadipour, B MohammadpourAhranjani, S Daeichin, Z MirbeigSabzevari. *J Coastal Life Medicine*.**2015**; 3(11): 872-874.
[5]SHAhmadipour, A Mohsenzadeh, KH Anbari and N Sadeghyar. *Annual Research & Review in Biology*.**2015**; 8(3): 1-7.
[6] MHemmati, SHAhmadipour, H Babaei, A Mohsenzadeh. *Life Science J*.**2012**;9(4).
[7] AMohsenzadeh, SH Ahmadipour, M Firouzi, H Babaei, KH Anbari. *Life Sci J*.**2013**;10(1):2063-2068.
[8] SHAhmadipour, A Mohsenzadeh, K Anbari, Z Sabzevari and Z Khodakaramifard. *J ChemPharmac Res*.**2015**; 7(10): 978-981.
[9] HBabaei, MR Ansari, AA Alipour, SH Ahmadipour, R Safari-Faramani and J Vakili. *World Applied Sciences J*. **2012**; 18 (5): 600-604.
[10] McIntyre A. Herbal treatment ofchildren, Western and Ayurvedic Perspectives.Elsevier, Edinburgh. 2005.
[11] RD Goldman, D Scolnik. *J PediatrEmerg Car*.**2004**;20(2): 89-93.
[12] E Pursell. *J ClinNurs*.**2009**; 18(2):210-18.
[13] RM Kliegman. 1st ed. Tehran: AndisheyeRafiePublication, **2009**: 471-474.
[14] A GhasemiPirbalouti, M Momeni, M Bahmani. *Afr J Tradit Complement Altern Med*. **2013**; 10(2):368-85.
[15] M Bahmani, T Farkhondeh and P Sadighara. *CompClinPathol*. **2012**; 21(3): 357-359.
[16] M Bahmani, SA Karamati, EKH Banihabib, K Saki. *Asian Pac J Trop Dis*. **2014**; 4(Suppl 1): 477-480.
[17] B Delfan, M Bahmani, M Rafieian-Kopaei, M Delfan, K Saki. *Asian Pac J Trop Dis*. **2014**; 4(Suppl 2): 879-884.
[18] M Bahmani and EKH Banihabib. *Global Vet*.**2013**; 10 (2): 153-157.
[19] W Kooti, M Ghasemiboroon, AAhangarpoor, A Hardani, A Amirzargar, M Asadi-Samani. *J BabolUniv Med Sci*. **2014**; 16(4):43-9.
[20] M Amirmohammadi, SH Khajoenia, M Bahmani, M Rafieian-Kopaei, Z Eftekhari, M Qorbani. *Asian Pac J Trop Dis*. **2014**; 4(Suppl 1): 250-254.
[21] M Bahmani, Z Eftekhari. *CompClin Path*. **2012**; 22: 403-407.
[22] Z Rabiei, MR Bigdeli, M Asadi-Saamni. *ZUMS J*. **2013**; 21(86):56-64.
[23] W Kooti, M Ghasemiboroon, M Asadi-Samani, A Ahangarpoor, A Noori Ahmad, MAbadi, R Afrisham, et al. *Adv Environ Biol*. **2014**; 8(9): 325-330.
[24] Z Eftekhari, M Bahmani, AMohsenzadegan, M Gholami-Ahangaran, J Abbasi, N Alighazi. *CompClin Path*. **2012**; 21: 1219-1222.
[25] M Bahmani, J Abbasi, AMohsenzadegan, S Sadeghian, M Gholami-Ahangaran. *CompClin Path*. **2013**; 22,165-168.

[26] M Bahmani, J Abbasi, AMohsenzadegan, S Sadeghian, M GholamiAhangaran. *CompClinPathol*. **2013**; 22:165–168.
[27] W Kooti, M Ghasemiboroon, M Asadi-Samani, AAhangarpoor, M Zamani, A Amirzargar, et al. *Adv Environ Biol*. **2014**; 8(10): 824-830.
[28] M Gholami-Ahangaran, M Bahmani, N Zia-Jahromi. *Asian Pac J Trop Dis*. **2012**; 2(1): S101-S103.
[29] M Bahmani, H Golshahi, AMohsenzadegan, M Ghollami- Ahangarani, E Ghasemi. *CompClinPathol*. **2013**; 22(4): 667-670.
[30] E Shayganni, M Bahmani, S Asgary, M Rafieian-Kopaei. *Phytomedicine*.**2015**; http://dx.doi.org/10.1016/j.phymed.**2015**.11.004
[31] M Gholami-Ahangaran, M Bahmani, N Zia-Jahrom. *Glob Vet*.**2012**; 8: 229-232.
[32] M Bahmani, AZargaran, M Rafieian-Kopaei. *Rev Bras Farmacogn*. **2014**; 24(4): 468-48.
[33]
[34] M Bahmani M, EKH Banihabib EKH M, Rafieian-Kopaei M, Gholami-Ahangaran M. Comparison of disinfection activities of nicotine with copper sulphate in water containing *Limnatisnilotica*. Kafkas Univ Vet Fak Derg. **2015**; 21 (1): 9-11.
[35] B Delfan, M Bahmani, Z Eftekhari, M Jelodari, K Saki, T Mohammadi. *Asian Pac J Trop Dis*. **2014**; 4(Suppl 2): 938-942.
[36] M Bahmani, K Saki, M Rafieian-Kopaei, SA Karamati, Z Eftekhari, M Jelodari. *Asian Pac J Trop Med*. **2014**; 7(Suppl 1): 14-21.
[37] M Asadi-Samani, M Bahmani, M Rafieian-Kopaei. *Asian Pac J Trop Med*. **2014**; 7(Suppl 1): 22-28.
[38] M Bahmani, AZargaran, M Rafieian-Kopaei, K Saki. *Asian Pac J Trop Med*. **2014**; 7(Suppl 1): 348-354.
[39] B Delfan, M Bahmani, H Hassanzadazar, K Saki, M Rafieian-Kopaei. *Asian Pac J Trop Med*. **2014**; 7(Suppl 1): 376-379.
[40] M Bahmani, M Rafieian-Kopaei, H Hassanzadazar, K Saki, SA Karamati, B Delfan. *Asian Pac J Trop Med*. **2014**; 7(Suppl 1): 29-33.
[41] K M Saki, Bahmani, M Rafieian-Kopaei. *Asian Pac J Trop Med*. **2014**; 7(Suppl 1): 34-42.
[42] M Bahmani, H Shirzad, M Majlesi, N Shahinfard, M Rafieian-Kopaei. *Asian Pac J Trop Med*. **2014**; 7(Suppl 1): 43-53.
[43] M Asadbeigi, T Mohammadi, M Rafieian-Kopaei, K Saki, M Bahmani, BDelfan. *Asian Pac J Trop Med*. **2014**; 7(Suppl 1): 364-368.
[44] SA Karamati, H Hassanzadazar, M Bahmani, M Rafieian-Kopaei. *Asian Pac J Trop Dis*. **2014**; 4(Suppl 2): 599-601.
[45] M Bahmani, M Rafieian-Kopaei, M Z Jeloudari, Eftekhari, B Delfan, AZargaran, et al. *Asian Pac J Trop Dis*.**2014**; 4(Suppl 2): 847-849.
[46] K Saki, M Bahmani, M Rafieian-Kopaei, H Hassanzadazar, K Dehghan, FBahmani, et al. *Asian Pac J Trop Dis*. **2014**; 4(Suppl 2): 895-901.
[47] M Bahmani, SA Karamati, H Hassanzadazar, SH Forouzan, M Rafieian-Kopaei, B Kazemi-Ghoshchi, et al. *Asian Pac J Trop Dis*. **2014**; 4(Suppl 2): 906-910.
[48] M Asadi-Samani, W Kooti, E Aslani, H Shirzad. *J Evid Based Complementary Altern Med*. **2015**. PubMed PMID: 26297173.
[49] M Bahmani, M Rafieian, A Baradaran, S Rafieian, M Rafieian-kopaei. *J Nephropathol*.**2014**; 3(2): 81-85.
[50] M Bahmani, K Saki, M Rafieian-Kopaei, SA Karamati, Z Eftekhari, M Jelodari. *Asian Pac J Trop Med*. **2014**; 7(Suppl 1): 14-21.
[51] Bahmani M, Rafieian-Kopaei M, Saki K, Majlesi M, Bahmani F, Bahmani F, et al. *J Chem Pharm Res*. **2015**, 7(2):493-502.
[52] M Asadi-Samani, N Kafash-Farkhad, N Azimi, A Fasihi, E Alinia-Ahandani, M Rafieian-Kopaei. *Asian Pac J Trop Biomed*.**2015**; 5(2):146-57.
[53] B Delfan, HR Kazemeini and M Bahmani. *J Evid Based Complementary Altern Med*. **2015**; 1-7. DOI: 10.1177/2156587214568458.
[54] B Delfan, M Bahmani, H Hassanzadazar, K Saki, M Rafieian-Kopaei, M Rashidipour, et al. *J Chem Pharm Res*. **2015**, 7(2):483-492.
[55] M Asadi-Samani, M Rafieian-Kopaei, N Azimi. *Pak J Biol Sci*. **2013**; 16, 1238-1247.
[56] M Bahmani, Z Eftekhari,ZJelodari, K Saki, R Abdollahi, M Majlesi, et al. *J Chem Pharm Res*. **2015**; 7(2):519-526.
[57] M Bahmani, M Mirhoseini, H Shirzad, M Sedighi, N Shahinfard, M Rafieian-Kopaei. *J Evid Based Complementary Altern Med*. **2015**; 1-10. DOI: 10.1177/2156587214568457.

[58] Bahmani, SH Forouzan, E Fazeli-Moghadam, M Rafieian-Kopaei, AAdineh, SH Saberianpour. *J Chem Pharm Res*. **2015**, 7(1):634-639.
[59] M Bahmani, H Shirzad, S Rafieian and M Rafieian-Kopaei. *J Evid Based Complementary Altern Med*. **2015**; doi: 10.1177/2156587215571116.
[60] M Bahmani, K Saki, M Asadbeygi, AAdineh, SH Saberianpour, M Rafieian-Kopaei, et al. *J Chem Pharm Res* .**2015**, 7(1):646-653.
[61] M Bahmani, K Saki, H Golshahi, M Rafieian-Kopaei, N Abdali, AAdineh, et al. *J Chem Pharm Res*. **2015**; 7(1):640-645.
[62] H Sebai,MA Jabri, A Souli, K Hosni, K Rtibi, O Tebourbi, et al. *Gen PhysiolBiophys*. **2015**; 34(3):263-75.
[63] H Rahman, AChandra. *Indian J Dent*. **2015**; 6(2):60-4.
[64] S Su, X Liu, G Pan, X Hou, H Zhang, Y Yuan. *Gene*. **2015**; 571(1):58-64.
[65] XT Si, ML Zhang, QW Shi, H Kiyota. *ChemBiodivers*. **2006**; 3(11):1163-80.
[66] B Benedek, B Kopp. *Wiener medizinischeWochenschrift* (1946).**2007**; 157(13-14):312-4.
[67] IP Baretta, RA Felizardo, VF Bimbato, MG dos Santos, CA Kassuya, A Gasparotto Junior, et al. *J Ethnopharmacol*. **2012**; 140(1):46-54.
[68] S Saeidnia, AGohari, N Mokhber-Dezfuli, F Kiuchi. *DARU*. **2011**; 19(3):173-86.
[69] E Nemeth E, J Bernath J. *Curr Pharm Des*. **2008**;14(29):3151-67.
[70] S Kruger S, M Mirgos M, GE Morlock GE. *J chromatogr A*. **2015**;1426:209-19.
[71] AOlejnik, M Olkowicz, K Kowalska, J Rychlik, R Dembczynski, K Myszka, et al. *Food Chem*. **2016**; 197:648-57.
[72] Z Zakay-Rones Z, N Varsano N, M Zlotnik M, O Manor O, L Regev L, M Schlesinger M, et al. *J AlternComplement Med*. **1995**;1(4):361-9.
[73] A Sidor, AGramza-Michałowska. *J Funct Foods*.**2014**. http://dx.doi.org/10.1016/j.jff.2014.07.012.
[74] L Fitsiou, O Tzakou, M Hancianu, APoiata. *J Essent Oil Res*. **2007**;19(2):183-5.
[75] I Stappen, J Wanner, N Tabanca, DE Wedge, A Ali, VK Kaul, et al. *Nat Prod Commun*. **2015**;10(1):133-8. .
[76] L Vlase, D Benedec, D G Hanganu, G Damian, I Csillag, B Sevastre, et al. *Molecules*. **2014**; 19(5):5490-507.
[77] S Asgari, R Ansari Samani, F Deris, N M Shahinfard, Salimi, S Mortazaei, et al . *J MazandaranUniv Med Sci*. **2012**; 22 (91) :40-48
[78] RZ Chekki, ASnoussi, I Hamrouni, N Bouzouita. *Mediterranean J Chem*. **2014**;3(4):947-56.
[79] B LaGow, J Gruenwald, T Brendler, C Jaenicke. Cornell University, USA, **2004**: 485–488.
[80] M Kacaniova, N Vukovic, E Horska, I Salamon, A Bobkova, L Hleba, et al. *J Environ Sci Health B*. **2014**;49(7):505-12.
[81] B Rahmati, M Khalili, M Roghani, P Ahghari. *J Ethnopharmacol*.**2013**;148(1):152-7.
[82] E Uribe, D Marin, VA ega-Galvez, I Quispe-Fuentes, A Rodriguez. *Food Chem*. **2016**; 190:559-65.
[83] Z Sun, H Wang, J Wang, L Zhou, P Yang. *PloS one*. **2014**;9(12):e114767.
[84] B Fatholahzadeh, M Emaneini, M Aligholi, G Gilbert, M Taherikalani, N Jonaidi, MA Eslampour, MM Feizabadi. *Jpn J Infect Dis*. **2009**; 62(4):309-11.
[85] P Asadollahi, M Akbari, S Soroush, M Taherikalani, K Asadollahi, K Sayehmiri, AMaleki, MH Maleki, P Karimi, M Emaneini. *Burns*.**2012**; 38(8):1198-203.
[86] M Taherikalani, AMaleki, N Sadeghifard, D Mohammadzadeh, S Soroush, P Asadollahi, K Asadollahi, M Emaneini. *Pol J Microbiol*.**2011**; 60(2):169-74.
[87] B Fatholahzadeh, M Emaneini, MM Feizabadi, H Sedaghat, M Aligholi, M Taherikalani, F Jabalameli. *Int J Antimicrob Agents*.**2009**; 33(3): 264-5.
[88] M Emaneini, M Taherikalani, MA Eslampour, H Sedaghat, M Aligholi, F Jabalameli, S Shahsavan, N Sotoudeh. *Microb Drug Resist*. **2009**; 15(2):129-32.
[89] F Jabalameli, AMirsalehian, N Sotoudeh, L Jabalameli, M Aligholi, B Khoramian, M Taherikalani, M Emaneini. *Burns*.**2011**; 37(7):1202-7.
[90] S Soroush, MT Haghi-Ashtiani, M Taheri-Kalani, M Emaneini, M Aligholi, N Sadeghifard, I Pakzad, M Abedini, Yasemi, H Paiman. *Acta Med Iran*.**2010**; 48(3):178-84.
[91] M Taherikalani, G Etemadi, KN Geliani, B Fatollahzadeh, S Soroush, MM Feizabadi. *Saudi Med J*. **2008**; 29(4):623-4.
[92] I Pakzad, S Ghafourian, M Taherikalani, N Sadeghifard, H Abtahi, M Rahbar, N MansoryJamshidi. *Iran J Basic Med Sci*. **2011**; 14(5):458-64.
[93] S Shahsavan, M Emaneini, B NoorazarKhoshgnab, B Khoramian, P Asadollahi, M Aligholi, F Jabalameli, MA Eslampour, M Taherikalani. *Burns*.**2012**; 38(3):378-82.

[94] M Haghi-Ashteiani, N Sadeghifard, M Abedini, S Soroush, M Taheri-Kalani.*Acta Med Iran*.**2007**; 45(2): 153-157.
[95]SS Khoramrooz, AMirsalehian, M Emaneini, F Jabalameli, M Aligholi, B Saedi, A Bazargani, M Taherikalani, P Borghaei, E Razmpa.*AurisNasus Larynx*.**2012**; 39(4):369-73.
[96] K Asadollahi, M Taherikalani, A Maleki, E Alizadeh, H Valadbaigi, S Soroush, H Maleki, P Asadollahi, M Emaneini. *ActaMicrobiolImmunol Hung*. **2011**; 58(4):359-70.
[97] M Akbari, M Niakan, M Taherikalani, MM Feizabadi, NA Azadi, S Soroush, M Emaneini, AAbdolkarimi, A Maleki, A Hematian. *ActaMicrobiolImmunol Hung*. **2010**; 57(2):87-94.
[98]F Jabalameli, AMirsalehian, B Khoramian, M Aligholi, SS Khoramrooz, P Asadollahi P, M Taherikalani, M Emaneini. *Burns*.**2012**; 38(8):1192-7.
[99] N Sahebekhtiari, Z Nochi, MA Eslampour, H HDabiri, M Bolfion, M Taherikalani,BKhoramian, MR Zali, M Emaneini. *ActaMicrobiolImmunol Hung*. **2011**; 58(2):113-21.
[100] N Kalantari, M Taherikalani, N Parvaneh, S Mamishi.*Iran J Public Health* .**2007**; 36 (3): 27-32.
[101] FA Nakhjavani, M Emaneini, H Hosseini, H Iman-Eini, M Aligholi, F Jabalameli, MT Haghi-Ashtiani, M Taherikalani, A Mirsalehian.*J Med Microbiol*.**2013**; 62(Pt 2):191-5.