Original Article: Can these environmental issues be resolved?

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ABSTRACT

Regarding this question, it should be strongly said that in most cases the answer is yes. Many of these power plants' problems can be solved, and the national ORNL laboratories play an important role in this regard. Choosing the right place for the right design, design and management can lead to further solutions to these problems. As mentioned earlier, the use of fish ladders, aeration and flow control in large dams is one such solution. Environmental solutions have always existed, meaning that activities can be performed to eliminate or minimize the effects of these projects, or ultimately to compensate for them in some way. In hydropower projects, work can be done to resolve, alleviate, or mitigate the problem before it occurs. ORNL experts have been working for over a decade to effectively evaluate these problems and provide solutions to them. We are currently assisting the US Department of Energy to, with the help of industry, present a plan for the technological development of these power plants in an environmentally friendly manner. Large dams in the Pacific Northwest have stairways for fish that allow adult free fish to enter the river from the ocean to spawn young fish. The fish ladder is a classic example of this. Today, it is found that resident fish in one area also migrate seasonally to spawn to other areas and therefore need a crossing to cross.

Introduction

In the state of Oregon, tens of miles per month migrate to the Kalamat River, and to this end passages have been erected, crossing the main river, which is not a suitable place for spawning. The young fish are scattered in the river and, after reaching maturity, cross the dam and return to their ancestral lands to form a new generation.

In most cases, if the turbines are well designed, the problem of dragging the fish into the turbine and crashing the fins, which can lead to their death, can be solved. To do this, we can design screens that prevent monthly entry. Some turbine designs are such that, with proper space and rotation, they will not be trapped by the fish.

What is needed here is a standard and suitable design for the turbines to protect the fish, and to be considered by all dam builders. During the operation of the turbine, it can also be operated in such a way that its adverse effects on the fish are minimized.

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In this case, it should be noted that the users of these power plants, when changing the power required for the generator, prefer to change the position of the blades instead of stopping.

Such actions will cause severe disturbances and more deadly fish will pass through. However, research shows that if the turbine operates at close to the maximum possible, it will not only increase the production efficiency, but also increase the electricity generation. Today, more than 10 turbines and generators are on the line in large dams, such as the one on the Columbia River.

What is the other solution?

Coutant: There are many examples of meeting certain criteria. For example, if the dam builder knows that a swamp habitat will disappear as the dam begins, it can build another animal shelter near the site and move the habitat to another habitat.

Or if the dam builder knows that with the commencement of the operation, a certain number of fish die daily, he can build a suitable breeding ground so that their offspring are not extinct and the fish balance is not disturbed.

Do disputes and other issues arise?

Mike: When gathering information about the impact of re-agreements, we found that multi-purpose dams have the greatest strengths and weaknesses. The downside is that there have been discussions about how to use a tank. For example, the people who used the river to attack timber and the fishermen were arguing about the depth of the water.

Owners of recreational areas also had conflicting interests (on the lake shore) with those who wanted to protect endangered species by conserving the forest. In addition, there is a classic and ongoing debate about consumption because one group wants to use water to generate electricity and the other group says that these dams should be dedicated to industry and agriculture. Of course, because water in a hydropower plant is non-consumable, it is more in line with environmental standards.

Coutant: Interestingly, there is also controversy over the permissible applications of hydropower plants.

The problem is that in order to control the flood, it is best to keep the water level at least as high as possible through the overflows so that there is room for the inlet to flow through the overflows, and this is not the case.

Ships use their own boats and are therefore strongly opposed to a 30-foot drop in water altitude in the summer. Accordingly, the authorities have designed this area of standard law to increase water levels to such an extent that it can satisfy the views of both groups.

Mike: Another problem is that in some parts of the United States, Native American rights must be respected, even if they conflict with the rights of others. Past events have led the US government to recognize them as a separate nation.

They have their own environmental and fisheries laws, and they have the right to have enough free fish in their usual fishing grounds and to have enough water to perform their religious rites, and to be sure that Has not been found.

In some areas around Washington, we have conducted detailed interviews with members of these tribes so that we can identify the problem and build the dam facility properly. We also discuss possible effects and possible solutions.

Coutant: In examining the socio-economic aspects of a barrier to electricity generation, we must assess the relative value of environmental resources in relation to electricity generation. It has already been said that the value of a hydropower plant is such that only very large environmental damage can erode that value.

At present, this hypothesis is disputed and fewer people believe that the hydropower plant is safe for fish and wildlife. It should be noted here that because hydropower plants have economic benefits, they must bear the costs of protecting the resources affected by the plant. Hence, one of the biggest socio-economic

disputes is over the balance between the value of environmental resources and hydropower plants.

How do you value environmental resources?

Coutant: It may seem that pricing a kilo of free fish on the market is a simple task, but the issue is more complicated than that. We know the market price, but what is the indirect value of this fish? What is the value of a human being who loves to climb mountains and watch a free river and fish circulation instead of water power plants and transmission lines? This is a problematic appraisal.

People want to pay more for electricity, but know that there is a community of fish out there, even if they have not fished or eaten. This is a value that must be taken into account in the profit and loss account.

In order to achieve an appropriate process for determining environmental resources in hydropower projects, a series of researches is required. In this case, the statement is contradictory, because if this valuation is done in small quantities, the installation of a staircase system is not justified, but if it is too much, such a system can be requested.

Are there other specific problems in other parts of the United States?

Coutant: Water allocation in the Central California Valley is probably the most difficult natural resource issue in the world, from which hydropower plants cannot be separated.

Mike: One example of filling out the Environmental Impact Statement on the Mokelumne River Multipurpose Dam project was that we did for FERC.

Project users were forced to conserve fishery resources at the bottom of the dam and, in addition, to release enough water for consumers downstream so that farmers could use it to irrigate crops. Recently, fishery resources have been given more importance than at the beginning, so we are studying to redistribute resources so that we can provide more water without negatively impacting other consumers. Doing such a thing is difficult. This is problematic because the value of water varies for each use, and determining the share of each will be difficult.

Coutant: The way water is allocated in the western states is that the sooner anyone gets up; the more water they will get. This means that anyone who has earlier requested the required amount can pump the same amount of water for irrigation or any other work. Over time, demand has increased and more water has been allocated.

Today, new consumers, such as those in the San Francisco Bay Area, need to get some water that does not diminish their share of the population, that is, they have become second-class consumers. Therefore, in order to meet the increasing needs, more dams must be built. Unfortunately, in the original allocation, the amount of consumption for fish was never taken into account. Only recently has a minimum current been established to protect endangered species.

How many projects are involved in the Pacific Northwest and California?

Mike: In the Pacific Northwest, we are working on 17 projects. of these

There are 9 small projects for the Skagit River Basin, 9 projects for the Nook Sack River Basin, and one re-permit project for another large project in the Skagit River.

These small projects, located in the Washington area, will each generate fifty megawatts of electricity. In California, we are evaluating a license for a large project on the Mokelumne River and a similar project on the Tvolumne River. We have several projects in the upper reaches of the Mokelumne River Basin. In addition, in California we are responsible for assessing changes in the management of a large dam on the Tvolumne River. The project will provide drinking water

to the city of San Francisco as well as water to irrigate two of the largest areas of the country.

What types of research do your laboratories provide to support environmental solutions at hydropower plants?

Mike: The most important project under consideration is the study of ways to alleviate environmental problems for the US Department of Energy. In this study, we traveled to all parts of the country and reviewed existing programs for this purpose to determine which ones performed well and which ones did not. We also published self-report findings.

We ask the Ministry of Energy to support us in improving the standard designs of traps, baskets and fish traps to help ensure safe movement of fish up and down. In the 1970s, Hildebrandt established the Environmental Hydropower Program at the US Department of Energy. In the early 1980s, we researched the situation in the neighborhood, researched the relationship between fish and habitat, and carried out projects with the US Department of Fisheries and Wildlife to destroy fish in turbines.

We like to do things in the lab and in the neighborhood. Today, we also do modeling work. We have now modeled the Chinook's ecological cycle of free fish based on all available information.

For example, we determine the effects of different conditions on monthly migration, spawning, and egg growth.

Unfortunately, sometimes there are also insurmountable problems that result from the multi-purpose nature of the dams.

In this way, for example, some of the solutions to the disadvantages of fishing for recreational fishing, which cannot be ignored.

From this we enter a process in which we can strike a balance by determining the best combination of multiple applications of the barrier. Another issue is that I think labs have unique personal experience in dealing with multiple issues and goals.

Can you give a good example of successfully creating this balance?

Mike: Yes, a good example is the Ohio River Basin. We were faced with issuing permits for 26 dams along the 500 miles of the river. The cumulative effects of these projects were that they drastically reduced the quality of the river water, especially the oxygen and solution, and we had to identify the best mix of projects to protect the environment as well as the dam.

For this purpose, we used a model of models that simulated the interaction between dams, and then optimized to maximize power generation, and protect the oxygen in the river solution.

We presented our conclusion in the environmental impact statement, which was debated in court due to the views of the Department of Fisheries and Wildlife.

Why did these agencies challenge your views?

Mika: This issue was a political dispute. These agencies try to politicize the position and do not present any technical issues.

In this particular case, it would be impossible to build any hydroelectric power plant if 100% protection of water quality and fish resources were desired. However, our analysis, based on computer modeling, showed that it was possible to simultaneously protect the environment to the standards and generate hydropower. At first, the builders thought that the conditions presented by us were difficult, but then they realized that Madara's statements were the basis of science and technology, and that the construction of dams was cost-effective.

Sadly, of the 16 licensed dams, only a few were rebuilt for economic reasons, not for environmental reasons, and builders were unable to sign contracts to sell electricity in the area.

What specific studies are you currently conducting on environmental solutions for hydropower plants?

Mike: The work we are currently working on for the US Department of Energy is about a series of case studies on environmental resources and the costs of the newest type of fishing facility. We want to extract the benefits of fisheries, facilities, and the costs of implementing these systems. However, studies conducted in 1992 show many solutions, some of which have very high cost-benefit ratios and some of which have very low or even zero or very high interest rates. These case studies will show how the best design can be done for each specific site.

Our other goal in this case study is to articulate different solutions and to tell which ones have been successful and which ones have failed, and the reason for their failure, and in most cases which system is better. We hope that our efforts will be prevented from happening again and that the manufacturers will not make similar mistakes in the future. In addition, we will introduce costly methods that should not be used before conducting local research.

Who is working with you to determine the cost of environmental methods?

Mike: The project we are working on for the US Department of Energy is a joint effort of the ORNL National Laboratory and the Idaho National Engineering Laboratory (INEL). One of our collaborators has worked in the energy sector on the crossroads for fishing. He is currently trying to figure out how to value fish communities. This is a problematic position because many values are effective in sustaining a community of fish. Because in addition to the direct consumption of fish, there are also indirect cases.

How is an environmental declaration completed for a hydropower project?

Mike: We usually complete a statement for each project, but FERC moves to have an impact assessment done on the entire catchment area. Because the large number of hydropower projects built on the river basin are relatively small, FERC tends to collect them all and make a large assessment of the entire catchment area. In the late 1980s, we conducted one of these assessments on the Ohio River Basin and, more recently, on the Nooksack Basin, both of which are in Washington state.

These general assessments are not only more cost-effective, but also oblige the government to assess the collective effects of a number of hydropower plants on a river basin. To do this, the interaction of several dams with the destruction of water quality or the cessation of free monthly migration must be examined.

What are the worst problems that the builders and users of the hydropower plant facilities are facing?

Mike: In this case, the vagueness of the law is one of the big problems. The law has changed several times over the past few years. Note that builders who want to design and build new dams must submit them to several federal and state agencies for approval. This will be a difficult time for builders as they have to deal with the nightmare of federal and state laws.

Another problem with public costs is the legal review, which means that costs have to be considered for the long run (from design to construction and operation).

This cost is also unclear, as this process may take 6 to 10 years and may change several times during this time. In addition, developers prefer not to do anything about damaging the environmental effects of dams except in the final stages of the process. Therefore, it will be difficult for a dam builder to estimate the amount of money he has to borrow and pay interest on.

The third problem is that today; environmental structures are sensitive to the builders of hydropower plants. Free fish populations on the west and east coasts are at risk, and people are very concerned about this.

Therefore, a lot of pressure is exerted on the builders by the people who consider the dams' problematic. Currently, some environmental associations are working to make some rivers

subject to federal protection laws and to block the construction of dams.

Coutant: In some cases, people try to remove barriers that prevent monthly migration or, by reducing the flow, block the free migration of young fish downstream. This effort has led to the dismantling of a small dam in the Olympic Peninsula and other dams, such as the Snake River Dam, which will not be dismantled but has been forced to create a stream that resembles a free-flowing river. The cost of dismantling or performing such repairs is enormous. Such actions have caused the dam construction business to become very sensitive.

Do ORNL Laboratories comment on the proposed dam design for hydropower plants as well?

Mike: It should be noted that some of these proposed projects should not be built at all because their location is not suitable. Some of them have insurmountable problems. For example, the barrier is in opposition to the monthly flow or Native American culture. In these cases, we recommend that FERC not run the project.

Coutant: It would be unfortunate that a project that seems appropriate for dam construction would be halted for any of these reasons. In the Northwest, for example, there was an empty fish-dwelling area, which was great for dam construction, but because it was located in an area that was considered sacred to native American tribes, it should not be considered a problem because it could not be separated from the culture.

If you have a special explanation, please?

Coutant: In many cases, with relatively little investment in research, most of the issues raised can be solved and long-term costs can be saved. Of course, economists are needed to study these cases.

In a successful study, manufacturers, device manufacturers, and researchers need to work together to develop a standard design for environmental protection, and by approving agreements, encouraging the implementation of such issues in most cases. Although the government is investing in such research, the amount of such investment is small and this research should be done in collaboration with government laboratories, dam builders, power plants, and law enforcement agencies.

Mike: I believe that in order for hydropower plants to become a major source of energy for the United States, three needs must be met, including research and development, education, and sound legislation.

Progress in all three areas will probably not be as fast as we think it will be, but it will be in the right direction.

Construction and operation of small hydropower plants

The topographic situation of the country in terms of the existence of the Alborz mountain range and other scattered mountains, as well as the existence of large and small rivers with numerous tributaries has created a suitable situation for the construction of small hydroelectric power plants.

The Ministry of Jihad Sazandegi started studying these power plants in order to sustainably develop the villages and supply electricity to remote villages, as well as to use the potential of wastewater in rural areas. It was inaugurated and put into operation.

This power plant provides a remote village in the Kalat Naderi region of Khorasan province, and although its installation capacity is 65 kW, it is the first hydroelectric power plant of its kind designed by Iranian experts. It was launched and was widely covered in the domestic and foreign press.

Conclusion

Jihad-e-Sazandegi started the studies of the comprehensive plan for identifying small hydropower potentials in the absence of the country in 1990.

The identification operation was carried out on a trust and contract basis with the participation of jihad organizations of affiliated regional offices as well as consulting companies in 20 potential provinces and in accordance with the agreement of the management and planning organization. The department of civil hydrology geology became an economic and social mechanic.

In addition to this plan and in order to provide statistics and hydrometric information of identified stations due to the location of stations in the country, with the success of the Management and Planning Organization, 4th grade hydrometric stations were built, the statistics of which will be completed by the end of the blue year 2002.

There have been 280 hydrometric stations on the rivers of 15 provinces of the country and every year the daily discharge statistics of these stations have been compiled in the form of statistical yearbooks. In this regard, we can refer to the statistics of the water years 2010-2011 and 2013-2014

References

[1] A. Yarahmadi, K. Kamrava, A. Shafee, M. Milanifard, M. Aghajanpour, Mohebbi A., *J. Pharm. Res. Int.*, **2019**, 1-6. [Crossref], [Google Scholar], [Publisher]

[2] T.S.H. Abadi, M. Askari, K. Miri, M.N. Nia, *Iran. J. Military Med.*, **2020**, *22*, 526-233. [Crossref], [Google Scholar], [Publisher]

[3] M. Abbasi, A. Nakhostin, F. Namdar, N. Chiniforush, M. Hasani Tabatabaei, *J. Lasers Med. Sci.*, **2018**, *9*, 82-86. [Crossref], [Google Scholar], [Publisher]

[4] A. Alipour, A. Ghadami, Z. Alipour, H. Abdollah Zadeh, *J. Health Psychol.*, **2020**, *8*, 163-175. [Crossref], [Google Scholar], [Publisher]

[5] N. Alrabadi, S. Shawagfeh, R. Haddad, T. Muktesh, S. Abu Hammad, D. Al-rabadi, R. Abu Farha, S. AlRabadi, I. Al-Faouri, *J. Pharm. Health Serv. Res.*, **2021**, *12*, 78-86. [Crossref], [Google Scholar], [Publisher]

[6] M. Aminzadeh, R. Mohebi far, Y. Azamines, M. Faraji, *J. Health*, **2015**, *6*, 169-179. [Crossref], [Google Scholar], [Publisher]

[7] N. Asadi, F. Salmani, S. Poorkhajuie, M. Mahdavifar, Z. Royani, *J. Psychiatry Clin. Psychol.*, **2020**, *26*, 306-319. [Crossref], [Google Scholar], [Publisher]

[8] S. Azizi Aram, S. Bashar poor, *Quarterly J of Nursing Management*, **2020**, *9*, 8-18. [Crossref], [Google Scholar], [Publisher]

[9] B. Mahmoodiyeh, S. Etemadi, A. Kamali, S. Rajabi, M. Milanifard, *Ann. Romanian Soc. Cell Biol.*, **2021**, *25*, 2559–2572. [Crossref], [Google Scholar], [Publisher]

[10] B. Shakiba, N. Torabi, R. Alimoradzadeh, R. Maghsoudi, *Journal of Iranian Medical Council*, **2022**, *5*, 227-228. [Crossref], [Google Scholar], [Publisher]

[11] M. Barzideh, A. Choobineh, S. Tabatabaei, *Occup. Med.*, **2012**, *4*, 17-27. [Crossref], [Google Scholar], [Publisher]

[12] D.C. Beachboard, J.M. Anderson-Daniels, M.R. Denison, *J Virol*, **2015**, *89*, 2080-2089. [Crossref], [Google Scholar], [Publisher]

[13] M.G.S. Borba, F.F.A. Val, V.S. Sampaio, M.A.A. Alexandre, G.C. Melo, M. Brito, M.P.G. Mourão, J.D. Brito-Sousa, D. Baía-da-Silva, M.V.F. Guerra, L.A. Hajjar, *JAMA network open*, **2020**, *3*, e208857. [Crossref], [Google Scholar], [Publisher]

[14] F. Afkar, S. Golalipour, M. Akanchi, S.M. Sajedi, A. Zandi Qashghaie, *NeuroQuantology*, **2022**, *20*, 632-642. [Crossref], [Google Scholar], [Publisher]

[15] F. Zabihi, M.A. Abbasi, R. Alimoradzadeh, *Ann. Romanian Soc. Cell Biol.*, **2021**, *25*, 2573–2579. [Crossref], [Google Scholar], [Publisher]

[16] F. Karimzadeh, S.M. Sajedi, S. Taram, F. Karimzadeh, *J. Prosthet. Dent.*, **2021**. [Crossref], [Google Scholar], [Publisher]

[17] Y. Furuta, B.B. Gowen, K. Takahashi, K. Shiraki, D.F. Smee, Barnard D.L., *Antiviral Res.*, **2013**, *100*, 446-454. [Crossref], [Google Scholar], [Publisher]

[18] M.J. Gadlage, J.S. Sparks, D.C. Beachboard, R.G. Cox, J.D. Doyle, C.C. Stobart, M.R. Denison, *J. Virol.*, **2010**, *84*, 280-290. [Crossref], [Google Scholar], [Publisher]
[19] E. Ghaibi, M.R. Soltani Manesh, M. Bushra, Z. Gilani, K. Salimi Nabi, F. Zarif, *Eurasian Journal of Chemical, Medicinal and Petroleum Research,* **2022**, *1*, 49-57. [Crossref], [Google Scholar], [Publisher]
[20] E Ghaibi, M.R. Soltani Manesh, H. Jafari Dezfouli, F. Zarif, Z. Jafari, Z. Gilani, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, **2022**, *1*, 33-39. [Crossref], [Google Scholar], [Publisher]
[21] K. Goyal, P. Chauhan, K. Chikara, P. Gupta, M.P. Singh, *Asian J. psychiatry*, **2020**, *49*, 101989. [Crossref], [Google Scholar], [Publisher]
[22] R.L. Graham, A.C. Sims, S.M. Brockway, R.S. Baric, M.R. Denison, *J. Virol*, **2005**, *79*, 13399-13411. [Crossref], [Google Scholar], [Publisher]
[23] B. Shakiba, N. Torabi, R. Alimoradzadeh, R. Maghsoudi, *Journal of Iranian Medical Council*, **2022**, *5*, 227-228. [Crossref], [Google Scholar], [Publisher]
[24] H. Alizadeh Otaghvar, K. Afsordeh, M. Hosseini, N. Mazhari, M. Dousti, *Journal of Surgery and Trauma*, **2020**, *8*, 156-160. [Crossref], [Google Scholar], [Publisher]
[25] H. Alizadeh Otaghvar, S. Moghaddam, A. Molaei, *J. Med. Chem. Sci.*, **2021**, 369-375. [Crossref], [Google Scholar], [Publisher]
[26] H. Jahandideh, A. Yarahmadi, S. Rajaieh, A.O. Shirazi, M. Milanifard, A. Yarahmadi, *J. Pharm. Ree. Int.*, **2020**, *31*, 1-7. [Crossref], [Google Scholar], [Publisher]
[27] H. Mirfakhraee, S. Golalipour, F. Ensafi, A. Ensafi, S. Hajisadeghi, *NeuroQuantology*, **2022**, *20*, 5118-5126. [Crossref], [Google Scholar], [Publisher]
[28] H. Mirjalili, H. Amani, A. Ismaili, M.M. Fard, A. Abdolrazaghnejad, *J. Med. Chem. Sci.*, **2022**, *5*, 204-214. [Crossref], [Google Scholar], [Publisher]
[29] H.A. Otaghvar, R. Rezapour-Nasrabad, M.A. Ebrahimzadeh, M. Yaghoubi, A.R. Khalatbary, D. Nasiry, A. Raoofi, A. Rostamzadeh, *J. Wound Care*, **2022**, *31*, S36-S44. [Crossref], [Google Scholar], [Publisher]
[30] H. Xu, L. Zhong, J. Deng, J. Peng, H. Dan, X. Zeng, T. Li, Q. Chen, *Int. J. Oral Sci.*, **2020**, *12*, 8. [Crossref], [Google Scholar], [Publisher]
[31] Y.A. Helmy, M. Fawzy, A. Elaswad, A. Sobieh, S.P. Kenney, A.A. Shehata, *J. Clin. Med.*, **2020**, *9*, 1225. [Crossref], [Google Scholar], [Publisher]
[32] E.A. Holmes, R.C. O'Connor, V.H. Perry, I. Tracey, S. Wessely, L. Arseneault, C. Ballard, H. Christensen, R.C. Silver, I. Everall, T. Ford,A. John, T. Kabir, K. King, I. Madan, S. Michie, A.K. Przybylski, R. Shafran, A. Sweeney, C.M. Worthman, L. Yardley, K.Cowan, C. Cope, M. Hotopf, E. Bullmore, *Lancet Psychiat.*, **2020**, *7*, 547-560. [Crossref], [Google Scholar], [Publisher]
[33] A.R. Hosseini Khalili, J. Thompson, A. Kehoe, N.S. Hopkinson, A. Khoshbaten, M.R. Soroush, S.E. Humphries, H. Montgomery, M. Ghanei, *BMC Pulm. Med.*, **2008**, *8*, 15. [Crossref], [Google Scholar], [Publisher]
[34] A. Johnson, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 2023, 2, 1-9. [Crossref], [Google Scholar], [Publisher]
[35] J.P. Montani, V.B. Vliet, *Angiotensin*, Springer, 2004, *163.1*, 3-29. [Crossref], [Google Scholar], [Publisher]
[36] H. Kalantari, A.H.H. Tabrizi, F. Foroohi, *Gene Rep.*, **2020**, *21*, 100910. [Crossref], [Google Scholar], [Publisher]
[37] I. Karampela, M. Dalamaga, *Arch. Med. Res.*, **2020**, *51*, 741-742. [Crossref], [Google Scholar], [Publisher]
[38] R.N. Kirchdoerfer, A.B. Ward, *Nat. Common.*, **2019**, *10*, 2342. [Crossref], [Google Scholar], [Publisher]
[39] K. Lo Han, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, 2022, *1*, 64-70. [Crossref], [Google Scholar], [Publisher]
[40] K. Lo Han, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, **2022**, *1*, 1-9. [Crossref], [Google Scholar], [Publisher]
[41] M. Abbasi, A. Nakhostin, F. Namdar, N. Chiniforush, M. Hasani Tabatabaei, *J. Lasers Med. Sci.*, Spring, **2018**, *9*, 82-86. [Crossref], [Google Scholar], [Publisher]
[42] M. Milanifard, G. Hassanzadeha, *J. Contemp Med. Sci.*, **2018**, *4*, 26-29. [Crossref], [Google Scholar], [Publisher]

[43] M. Yavari, S.E. Hassanpour, H.A. Otaghvar, H.A. Abdolrazaghi, A.R. Farhoud, *Arch. Bone Jt Surg.*, **2019**, *7*, 258. [Crossref], [Google Scholar], [Publisher]
[44] S. Mahmoodi, M. Hesabi, A. Emami sigaroudi, E. Kazemnejad leili, A. Monfared, JHNM, **2015**, *25*, 63-72. [Crossref], [Google Scholar], [Publisher]
[45] M.B. Abhari, P.F. Afshar, R. Alimoradzadeh, H. Mirmiranpour, *Immunopathol. Persa*, **2019**, *6*, e10-e10 [Crossref], [Google Scholar], [Publisher]
[46] M. Mileski, U. Pannu, B. Payne, E. Sterling, R. McClay, *Healthcare*, **2020**, *8*, 114-134. [Crossref], [Google Scholar], [Publisher]
[47] M.M. Fard, *GMJ Med.*, **2021**, *5*, 391-395. [Crossref], [Google Scholar], [Publisher]
[48] N. Shahkarami, M. Nazari, M. Milanifard, R. Tavakolimoghadam, A. Bahmani, *Eurasian Chem. Commun.*, **2022**, *4*, 463-472 [Crossref], [Google Scholar], [Publisher]
[49] N. Shahkarami, M. Nazari, M. Milanifard, R. Tavakolimoghadam, A. Bahmani, *Eurasian Chem. Commun.*, **2022**, *4*, 463-472 [Crossref], [Google Scholar], [Publisher]
[50] N. Zaimzadeh, S. Ziaie, N. Mohammadzadeh, H. Alizadeh Otaghvar, A. Mottaghi, *Razi J. Med. Sci.*, **2018**, *25*, 59-68. [Crossref], [Google Scholar], [Publisher]
[51] N. Zaimzadeh, S. Ziaie, N. Mohammadzadeh, H. Alizadeh Otaghvar, et al., *Razi Journal of Medical Sciences*, **2018**, *25*, 87-96. [Crossref], [Google Scholar], [Publisher]
[52] F. Najafi, F. Kerjasama, E. Gangoozehi, *Iran. J. Rehabilitation Res. Nursing*, **2018**, *4*, 53-59. [Crossref], [Google Scholar], [Publisher]
[53] S.Z. Nazardani, S.H. Nourizadeh Dehkordi, A. Ghorbani, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, **2023**, *2*, 10-16. [Crossref], [Google Scholar], [Publisher]
[54] A. Nurmeksela, S. Mikkonen, J. Kinnunen, T. Kvist, *Res. Sq.*, **2020**, *1*, 1-22. [Crossref], [Google Scholar], [Publisher]
[55] P. Dini, B. Shakiba, R. Alimoradzadeh, N. Torabi, M.W.C. Watch, *J. Affect. Disord.*, **2021**, *281*, 502. [Crossref], [Google Scholar], [Publisher]
[56] R. Alimoradzadeh, H. Mirmiranpour, P. Hashemi, S. Pezeshki, S.S. Salehi, *J. Neurology & Neurophysiol.*, **2019**, *10*, 1-5. [Crossref], [Google Scholar], [Publisher]
[57] R. Alimoradzadeh, M. Mokhtare, S. Agah, *Iran. J. Ageing*, **2017**, *12*, 78-89. [Crossref], [Google Scholar], [Publisher]
[58] R. Alimoradzadeh, M.A. Abbasi, F. Zabihi, H. Mirmiranpour, *Iran. J. Ageing*, **2021**, *15*, 524-533. [Crossref], [Google Scholar], [Publisher]
[59] F. Rebout, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, **2022**, *1*, 20-32. [Crossref], [Google Scholar], [Publisher]
[60] F. Rebout, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, **2022**, *1*, 58-63. [Crossref], [Google Scholar], [Publisher]
[61] H.A. Rothan, S.N. Byrareddy, *J. Autoimmune.*, 2020, *109*, 102433. [Crossref], [Google Scholar], [Publisher]
[62] S. Golalipour, Z. Soleimanydarinsoo, N. Qaderi, H. Ghazipoor, M. Salahi, *NeuroQuantology*, **2022**, *20*, 1519-1527. [Crossref], [Google Scholar], [Publisher]
[63] S.H. Salehi, K. As'adi, S.J. Mousavi, S. Shoar, *Indian J. Surg.*, **2015**, *77*, 427-431. [Crossref], [Google Scholar], [Publisher]
[64] S.H. Salehi, M.J, Fatemih, K. Aśadi, S. Shoar, A. Der Ghazarian, R. Samimi, *Burns*, **2014**, *40*, 300-304. [Crossref], [Google Scholar], [Publisher]
[65] N. Samiei, H.K. Ghane, Y. Khaled, *SVOA Dentistry*, **2021**, *2*, 254-257. [Crossref], [Google Scholar], [Publisher]
[66] P. Serrano, M.A. Johnson, A. Chatterjee, B.W. Neuman, J.S. Joseph, M.J. Buchmeier, P. Kuhn, K. Wüthrich, *J. Virol.*, 2009, 83, 12998-13008. [Crossref], [Google Scholar], [Publisher]
[67] S.P. Smieszek, B.P. Przychodzen, M.H. Polymeropoulos, *Int. J. Antimicrob. Agents*, **2020**, *55*, 106004. [Crossref], [Google Scholar], [Publisher]
[68] C.D. Spinner, R.L. Gottlieb, G.J. Criner, J.R.A. López, A.M. Cattelan, A.S. Viladomiu, O. Ogbuagu, P. Malhotra, K.M. Mullane, A. Castagna, L.Y.A. Chai, *Jama*, **2020**, *324*, 1048-1057. [Crossref], [Google Scholar], [Publisher]

[69] A.J. Stoessl, K.P. Bhatia, M. Merello, *Mov. Disord. Clin. Pract.*, **2020**, *7*, 355-356. [Crossref], [Google Scholar], [Publisher]
[70] V. Monteil, M. Dyczynski, V.M. Lauschke, H. Kwon, G. Wirnsberger, S. Youhanna, H. Zhang, A.S. Slutsky, C.H. del Pozo, M. Horn, N. Montserrat, J.M. Penninger, A. Mirazimi, *EMBO Mol. Med.*, **2020**, *13*, e13426. [Crossref], [Google Scholar], [Publisher]
[71] M. Zbuzant, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, **2022**, *1*, 10-19. [Crossref], [Google Scholar], [Publisher]
[72] M. Zbuzant, *Eurasian Journal of Chemical, Medicinal and Petroleum Research*, **2022**, *1*, 40-48. [Crossref], [Google Scholar], [Publisher]