

Research Journal of Pharmaceutical, Biological and Chemical Sciences

The Role of Moringa Capsules with Nanogold and Nanosilver to Maintain Immunity During Umrah in Mecca-Medina: A Case Study on Special Group Umrah as Clinical Test Volunteers.

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ABSTRACT

Clinical trials of Moringa capsules with nanogold and nano-silver on special volunteers, namely the Mecca-Madinah Umrah participant group, have been carried out. As is well known, the Umrah requires more physical strength and high immunity in order to be able to carry out activities such as walking around the Kaaba, walking to the Sofa-Marwa hill, and other trips. Strong immunity especial to deal with various disease attacks due to the gathering of many people from various countries. Although all Umrah participants have been provided with the meningitis vaccine, this does not rule out the possibility of developing various diseases, including coughs, colds, headaches, and joint pain or rheumatism. The 42 Umrah participants in the clinical trial group were also provided with various medicines to maintain their health. Moringa capsules were distributed to 42 people to maintain immunity during the Umrah this time. A total of 42 peoples were divided into Moringa capsules with nanogold and nano-silver, 7 people did not drink regularly and 35 people drank regularly 2 capsules in the morning and 2 capsules at night. Moringa capsule clinical trials in this limited group were carried out for 14 days. The results obtained in the group that regularly consumed moringa capsules were generally very good. These 35 people did not experience any illness during the Umrah, be it flu (cold), cough, headache, or rheumatism. On returning 2 people had mild headaches and coughs. By consuming the moringa capsules immediately in the amount of 3 capsules in a row with a 2-hour interval, the complaint has been resolved. The group that did not regularly consume moringa capsules was 7 people, 5 of whom experienced coughs, colds, headaches, and rheumatism. This shows a low level of immunity because it is easy to get sick. It was clearer that the group that regularly consumed moringa capsules was physically stronger and had a higher level of immunity. This is calculated from the number of 35 people only 2 people are sick. The group that did not regularly consume Moringa capsules was 7 people, and 5 experienced pain. The role of Moringa capsules with nanogold and nano-silver is very clear in helping to maintain the immunity of the Umrah participant group in specific case studies in clinical trials of Moringa capsules. Still need data to support clinical trials of moringa capsules in various other groups of volunteers. This is intended to strengthen the moringa capsule with nanogold and nano-silver as a supplement and future medicine, especially to increase the body's immunity against various diseases.

Keywords: nanogold; nano-silver; moringa capsules; immune system; clinic test

<https://doi.org/10.33887/rjpbcs/2023.14.1.8>

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INTRODUCTION

A healthy body and strong immunity are needed for various human activities. Umrah worship is one of those that requires both of these things. In this Umrah, humans are required to walk around the Kaaba as a ritual called tawaf. Likewise walking to the Safa-Marwa hill which is called the Sa'ii ritual really requires high vitality of the body. In addition to vitality, one also needs immunity from attacks by various diseases due to direct encounters with thousands of people and even millions of people from various countries.

Moringa capsules have been previously tested on people exposed to Covid-19 in Indonesia. This time the trial or clinical trial of the moringa capsules was carried out on an Umrah group from Indonesia who carried out a series of worship services in Mecca-Medina. The distribution of Moringa capsules was carried out to all participants in small groups consisting of 42 Umrah congregations. They are free to want and not want to consume moringa capsules. They are grouped into two categories who regularly consume moringa capsules and do not regularly consume moringa capsules.

The Moringa capsules distributed contain nanogold which has high antioxidant activity while nanomaterial silver has antimicrobial to antiviral activity. The group that regularly consumes 35 people while those who don't routinely do not want to consume moringa capsules 7 people. These two groups are indeed not the same in number because there is no compulsion to want to consume moringa capsules. Data on the number of sick congregations from these two groups will be calculated and compared to the number of healthy congregations. Sick congregations show a low level of immunity and vice versa. The diseases experienced in general are coughs, colds, flu, fever, and headaches. These minor illnesses do not come to people with high immunity. Nanogold has properties as an antioxidant that counteracts free radicals that cause health problems and these diseases.

Not only that, nanogold is also able to ward off various disease complaints that are more dangerous to health. The use of nanogold has penetrated into various cases of the disease. Including rheumatoid arthritis. Rheumatic arthritis is characterized by swelling in the joint area [1]. Joints are not only swollen but also painful when pressed. This is due to the accumulation of excess joint fluid. Not only does joint fluid collect, but also the products of protein breakdown and free radicals that accompany this breakdown process [2]. Amino acids and smaller protein degradation products CN⁻ are also present in the joint fluid of patients with rheumatoid arthritis. Accumulation of joint fluid and increased volume of joint fluid causes interference [3]. This disorder is in the form of pain and tenderness when the joint is moved. This is because of the joint fluid that accumulates presses on the peripheral nerves in the joint area [4]. For volunteers in the Umrah group, it is necessary to pay attention to rheumatoid arthritis sufferers. This is because the physical activity during Umrah is walking which involves the joints of the legs. So it is hoped that volunteers will not experience rheumatic arthritis pain [5].

Moringa capsule clinical trials for groups of people who make Umrah to Mecca-Madinah really need to be done. This clinical trial aims to increase the community's immunity while carrying out a series of Umrah services. Some of the Umrah group of people have complaints of rheumatoid arthritis. They have difficulty standing straight and walking normally due to joint inflammation [1]. Nanogold helps reduce the joint fluid that causes swelling. Nanogold is able to reduce free radicals, namely radical species that are formed during protein degradation [6]. Nanogold also binds to CN⁻ cyanide which is a poison that irritates joints [7]. The strong binding of cyanide by nanogold is indicated by the very large formation constant of H-Au-CN⁻. These molecules found in sweat and urine are evidence of cyanide excretion.

Free radical reduction by nanogold has been studied in various studies [8]. The reduction of free radicals by nanogold is 10 times the scavenging of free radicals by vitamin E [9]. This really supports the application of nanogold to increase the immunity of volunteers for community groups participating in Umrah in the form of Moringa capsules containing nanogold nano-silver. Nanogold can increase glutathione activity and has also been reported as a research result. Glutathione is an antioxidant that the body has at the cellular level [10]. Increased glutathione activity is synonymous with increased body immunity. Furthermore, cyanide poisons and free radicals are bound by nanogold and carried in the excretory system both in sweat and urine [11]. The accumulation of cyanide poisons and free radicals is reduced during the treatment.

Nanogold also repairs cell damage that occurs by activating cell proliferation [12][13]. Nanogold has also been shown to increase collagen biosynthesis. Collagen is the main protein that makes up tissues. Tight collagen will support a network that is strong and not easily broken and damaged [13]. With the new healthy cells, the old damaged and diseased cells leave the body. This gradual improvement has an impact on disease recovery so that volunteers with rheumatism experience a decrease in complaints until they recover. Nanogold was originally used to treat rheumatoid arthritis [1]. Therefore, the administration of nanogold and nano-silver in capsule form along with the fine powder of Moringa leaves is expected to be a solution for rheumatoid arthritis sufferers and also to increase the body's immunity. It was very easy to recognize rheumatoid arthritis experienced by volunteers. Rheumatoid arthritis is physically characterized by the body not being able to stand up straight because of the pain. They cannot walk normally because their joints are swollen [14]. The reduction in rheumatoid arthritis and also health was obtained from direct interview information with volunteers who were willing to consume Moringa capsules regularly or not. In addition, observations were also made to see if the volunteers had coughs, colds, flu, and other complaints. The recording has done every day and even every meeting at breakfast, lunch, or dinner [15].

MATERIAL AND METHODS

Volunteers in the Moringa capsule clinical trial were a small group of Indonesian people who took an Umrah to Mecca-Madinah. A total of 42 Umrah congregation members were divided without coercion, namely the group that regularly consumed Moringa capsules and the group that did not regularly consume Moringa capsules. Moringa capsules as a material being tested clinically consist of dried and finely ground moringa powder, colloidal nanogold, and nano-silver. The three materials were dried and put in a capsule shell from PT. Capsules Indonesia which already has a BPOM distribution permit and has Halal certified.

Material

The materials used in this study were nanogold and nano-silver which were synthesized in distilled water. The synthesis process uses the Bottom-Up method. The treatment for the volunteers of the Umrah congregation group was to distribute one bottle of 60 capsules to each person to consume 2 capsules in the morning and 2 capsules in the evening. The capsules will run out on the 15th day. The Umrah was for 14 days so only 14 days are counted as treatment. Data was collected every day, namely the number of congregants who experience illness or complaints, be it coughs, colds, flu, fever, or headaches. The data was in the form of interviews asking about the health condition of the body.

Synthesis Nanogold dan Nano-silver

Synthesis of nanogold using distilled water with sodium citrate as a reducing agent. The nanogold material is made from 24-karat pure gold metal which is dissolved in aqua regia. Every 1 gram of pure gold requires 8 ml of aqua regia. The gold solution formed was then diluted to 1000 ml. The result in the form of HAuCl_4 with a concentration of 1000 ppm (part per million) is then used as the main synthesis solution.

Synthesis of nano-silver with distilled water as well as reducing agent sodium citrate. The basic ingredient is silver nitrate which is dissolved in distilled water until a concentration of 1000 ppm is obtained.

The synthesis process begins by heating 980 ml of sterile water specifically for injection until it boils. Added 20 ml mother liquor and 2 g sodium citrate. Heating was continued until the nanogold was formed. The formed nanogold is indicated by the change in colour of the solution to red [16]. The heating was stopped and the nanogold cooled down. Nano-silver was synthesized by the same process as nanogold synthesis. With silver nitrate of 1000 ppm, it produces a 20ppm nano-silver. Furthermore, the size of the nanogold and nano-silver was confirmed using a TEM instrument.

Inform Consent

Volunteer participants were a group of Umrah congregations who are members of a travel agency with a package of 13-14 days starting from the time of departure until returning to Indonesia. The explanation was given when the Moringa capsules were distributed, namely during rituals before the plane departed. Explanation, especially about the freedom to want to drink Moringa capsules or not. Due to its non-binding nature, no gifts were given apart from one bottle of the Moringa capsule itself. Data collection

is also very flexible, namely interviews related to general health developments and recording when there are complaints of starting to get sick. The disease referred to is also a mild general illness, namely coughs, colds (flu), headaches, and rheumatism. Data can also be obtained through proactive communication via WhatsApp groups.

Methods of Conducting Clinical Trial

Explanation to volunteers was carried out before the clinical trials were carried out. The explanation includes the introduction of the nanogold, nanosilver material, and the benefits of Moringa capsules. Explanation of side effects and impacts. All impacts caused will be the responsibility of researchers and volunteers will be restored if health problems occur. Volunteers were free to resign if it is deemed necessary. Volunteers who are ready to take part in clinical trials are required to follow the directions of the researchers.

RESULT AND DISCUSSION

This section will explain the results of the research and discuss the results of the research.

Nanogold Synthesis Results

The result of nanogold synthesis is colloidal which is red in colour. Basically, this synthesis includes the process of reducing Au $3+$ cations to Au atoms. These Au atoms immediately form a collection of atoms in a colloidal form. These colloids are then analysis are carried out with TEM instruments to determine the size of the atomic clusters formed. This TEM analysis needs to be done so that when it is formulated in Moringa capsules it is ensured that it is in nano size, namely 1-100 nm. This is so that it can be used as drug delivery for the active compounds of Moringa leaves to targets in the body. Figure 2 shows the size of a collection of nanogold atoms in the range of 8-10 nm. The collection of nanogold atoms looks uniform in size. There are several collections of nanogold atoms that have large sizes, namely 20-30 nm, but only a few. There is also a very small atomic collection size of 2-3 nm but also only a few in number. These it can be said that the size of the atomic collection or cluster of nanogold is uniform 8-10 nm.



Figure 1. Colloidal Nanogold

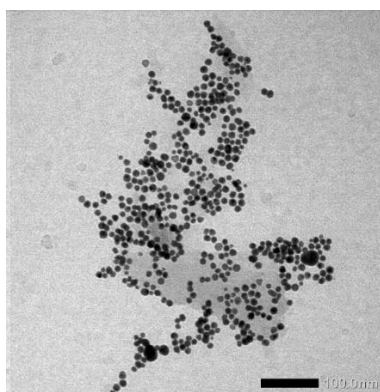


Figure 2. Nanogold Colloidal TEM Analysis

Nanosilver Synthesis Results

The result of nanosilver synthesis is a yellow colloidal. Basically, nanosilver synthesis was a process of reducing silver ions into silver atoms. Silver atoms immediately combine with each other to form a collection of silver atoms in a colloidal form. Furthermore, colloidal silver was analyzed with a TEM instrument. This was to ensure the size of the nanosilver is in the nano range, namely 1-100 nm. This was to ensure the activity of nanosilver an antimicrobial to antiviral.



Figure 1. Colloidal Nanosilver.

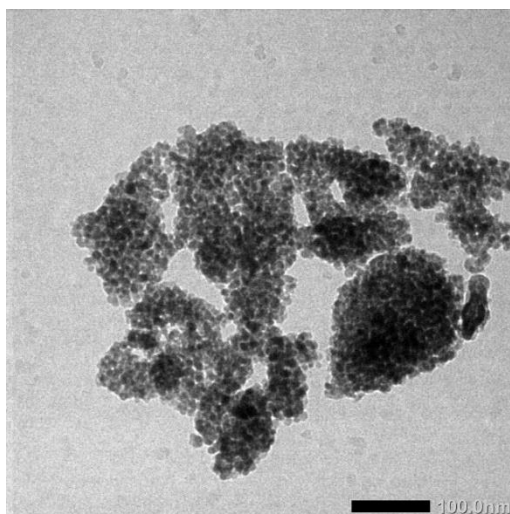


Figure 4. Nanosilver Colloidal TEM Analysis.

Figure 4 shows the size of the 12-20 nm nanosilver clusters. The size of the nanosilver clusters looks uniform and larger than the diameter of the nanogold clusters. Nanosilver clusters accumulate more and are not scattered like nanogold. This cluster forms a larger collection.

Clinical Trial Results

Results of clinical trials of 42 community volunteers for the Umrah group with various complaints including coughs, flu, headaches, and rheumatic arthritis or joint pain. Volunteers were divided voluntarily into 2 groups, namely the group that regularly consumed Moringa capsules and the group that did not regularly consume Moringa capsules, explained as follows:

Groups of Volunteers Routinely Consuming Moringa Capsules

The group that regularly consumes moringa capsules was 35 people out of 42 people total volunteers. Data collection was carried out every 3 days, namely at lunch or dinner gatherings. Data can be

seen in Table 1 shows the first 3 days there was 1 cough, 2 flu, 1 headache, and 2 leg aches. For those who experience pain, it was recommended to take moringa capsules not only 2 times a day but can be 3-5 times. Then for the next 3 days, there was only one volunteer who coughed, had a runny nose, and had a headache, but there were 2 people who had sciatica. Then on the 3rd day, there was one person who had a cough, headache, and sciatica but there were 2 people who had the flu. On the 4th or last 3 days, 2 people each had coughs, flu, headaches, and sciatica or rheumatism. This was the worst condition during data collection. Then take 3 capsules of Moringa capsules and repeat after 2 hours up to 3 times. All complaints were resolved with this Action. This showed that the volunteers' immunity during clinical trials is maintained and even increases. Increased immunity can be seen in the process of recovering from rheumatoid arthritis experienced during clinical trials [12].

When volunteers experience pain, it means that the body's immune is down, and the immune system is defeated by the disease. The active compounds of moringa, nanogold and nano-silver help boost the body's immunity so that complaints of pain can disappear and the body was healthy again [17]. For volunteers with complaints of sciatica or rheumatism, nanogold was needed to draw joint fluid that accumulates and interferes with joints and blood flow. This process takes place faster with the addition of moringa capsule doses so that you recover faster from pain [1]. Joint pain when pressed decreases over time. They could stand straight without pain. They also walk normally again [18]. They feel extraordinary in their joints. They feel greatly reduced in pain and can rest and sleep peacefully [19].

Volunteer groups who do not regularly consume Moringa Capsules

The group that did not consume Moringa capsules regularly was only 7 people out of a total of 42 volunteers. Even so, there were many complaints of illness, namely 5 people on average for each data collection. Data collection was carried out every 3 days by counting how many people are sick, whether coughing, runny nose, headache, or joint pain. Data is recorded and can be observed in Table 2. In the first 3 days, 3 people had coughs and headaches, 2 of them also had a cold or flu and there were 5 people out of 7 who experienced rheumatic pain or rheumatism in the leg joints.

In the next 3 days, there were 3 people with coughs and colds, 4 people with headaches, and 5 people with arthritis. The data did not change for the next 3 days where 4 people had coughs and colds, while 5 people had headaches and rheumatic. Until the 12th day or the last day, the condition got worse with data 5 people experiencing coughs, colds, headaches and rheumatic pain where one person ended up using a wheelchair because he couldn't walk. Taking moringa capsules is recommended but some still don't want to drink. 2 people want to drink but have not shown results at the time of the last data collection. But when they got home (Indonesia) 2 people reported that they had recovered. Recovery of complaints of coughs, colds, headaches, and rheumatism shows an increase in immunity which is assisted by accelerating the intake of Moringa capsules [6].

Table 1: Medical Record Umrah Group Volunteer that Consume Moringa Capsule Regularly (35 people)

Data	BT	BP	HR	RS
3Day-1Th	1	2	1	2
3Day-2Th	1	1	2	1
3Day-3Th	1	2	1	1
3Day-4Th	2	2	2	2
BT = Cough; BP = Flu; HR = Headache RS= Rheumatic Arthritic				

Medical record data in table 1 BT, BP and HR, and RS are the number of volunteers who experience coughs, flu, headaches, and rheumatism, which is only 1-2 people out of 35 clinical trial volunteers. If you calculate the percentage, you get 3-5%. This percentage was obtained by calculating the number of sick people divided by the total number of volunteers (35 people) times 100 percent [15][17].

Table 1. Medical Record Umrah Group Volunteer that not Consume Moringa Capsule Regularly (7 people)

Data	BT	BP	HR	RS
3Day-1Th	3	2	3	5
3Day-2Th	3	3	4	5
3Day-3Th	4	4	5	5
3Day-4Th	5	5	5	5
BT = Cough; BP = Flu; HR = Headache RS= Rheumatic Arthritic				

A decrease in rheumatic complaints indicates reduced joint fluid in rheumatic arthritis. This is consistent with the theory that developed from previous research. In cases of rheumatic arthritis, the joints experience swelling [18]. Joint fluid increases in volume due to accumulated protein degradation into amino acids, free radicals, and cyanide poison. The increased amount of joint fluid triggers swelling and pain due to pressure on the nerves in the swollen joints [19]. This was also experienced by volunteers from the Umrah group who had rheumatoid arthritis.

Nanogold interacts with CN-cyanide and brings it into the body's excretory system. Likewise with the ability of nanogold to reduce free radicals and carry them in the body's exhaust system [1]. Strongly supported the fact that the pain in the joints decreases gradually. This was also felt by clinical trial volunteers. The annulment of free radicals from the body reduces the damage that occurs. Because free radicals are always attacking and damaging the surrounding cells. With reduced free radicals, tissue recovery occurs more quickly [6].

Nanogold also increases cell proliferation which is very helpful in the formation of new tissue [13]. Nanogold also increases collagen biosynthesis, which is a type of protein [20]. With the new protein building formed, tissue damage is immediately restored [21]. By consuming moringa capsules containing nanogold tissue damage to the joints is gradually recovered and the pain is reduced. This is the process of recovering from rheumatoid arthritis which is also felt by clinical trial volunteers.

The activity of nano-silver is very dominant as an antimicrobial [22] to antiviral [23] where volunteers with complaints of coughs, colds caused by viruses can be overcome with Moringa capsules which also contain nano-silver [24]. Those who are already sick by consuming excess moringa capsules actually speed up the recovery process [25]. In addition to the activity of nano-silver, nanogold also acts as an antioxidant. Antioxidants boost the immune system [26]. Both nanogold and nano-silver play a role as drug delivery for the active drug compounds in Moringa leaves to enter receptors in the body more optimally [27]. The Moringa plant itself contains poly-phenols, flavonoids, vitamins and various natural antioxidants [28]. The synergy of nanogold and nano-silver in Moringa capsules accelerates the recovery of pain complaints from volunteers [10][27] of the Umrah group.

CONCLUSION

The conclusion of the research is; Volunteers for the clinical trial of the Mecca-Madinah Umrah group experienced the efficacy of Moringa capsules in maintaining immunity during Umrah worship activities. During clinical trials, volunteers felt the role of moringa capsules in helping recover complaints of coughs, colds, headaches and leg pain or rheumatism. Volunteers feel the need to inform that moringa capsules should be relied upon as medicine or future supplements to maintain general health for Umrah pilgrims.

ACKNOWLEDGEMENT

Thank you to the Ministry of Education and Culture through the Director General of Higher Education for providing funding for the Matching Fun Program, from *Kedaireka*- 2022. Thank you to Universitas Negeri Surabaya through the Institute for Research and Community Service (LPPM) for managing the disbursement of research funds and conducting research administration well.

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