

## Traditional treatment of COVID-19 symptoms with ancient goat butter : medical follow-up of 27 cases in Batna, Algeria

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### Abstract

The search of an effective treatment to cure COVID-19 patients and to dwindle the virus carriage duration gives the opportunity to traditional medicine to expand several tests.

Goat butter is used in traditional medicine on the east of Algeria for different lung diseases such a chronic bronchitis and other lung infections.

We follow up report on 27 SARS-CoV-2 positive tested patients with PCR-rt and putted at home containment, the patients were auto medicated with a very ancient goat butter with a dose of 3 g two times daily for fifteen days.

A noted clinical improvement was confirmed in all 27 cases, clinical symptoms such as fever, cough and respiratory disorders have been missing after the first ten days of treatment, all patients are recovered and do not show any Covid-19 symptoms after one month of the ancient goat butter cure.

Ancient goat butter has antiviral potential in traditional medicine used on the Aurés region of Algeria due to its richness of peptides and bioactive lipids. The findings support that this product have efficacy in the treatment of COVID-19. Generally, Aurésian people use this product for all lung disease sins many years ago which is being tested now to control its effectiveness to fight this world global health crisis.

**Key words:** COVID-19, ancient goat butter, SARS-COV-2, antiviral, treatment

## Introduction

COVID-19 is a pandemic characterized by a rapid global spread since December 2019 [1], its represented by a severe acute respiratory syndrome and also called SARS-CoV-2 emerged from Wuhan, China and swiftly spread worldwide. As of May16, 2020, it involved 197 countries and infected 4,425,485 with a mortality rate of 310,263 (6,63 %) [2].

There are many levels of interaction between viruses and the hosts that they infect, these complex interactions result in different types of pathologies depending on the virus, the type of organ affected and the host's immune system response. Many viral infections are eradicated by the body, while others persist and can induce chronic diseases [3]. Human infection with COVID-19 Have raised great public health concern globally [3, 27]. The World Health Organization (WHO) has announced SARS-CoV-2 outbreak as a global health emergency [2].

Coronaviruses (CoV) are a huge family of viruses with an RNA genome extremely long (several thousand nucleotides), they are surrounded by a protein capsule in the shape of a crown which gives them their name. There are many subtypes of coronaviruses infecting different animal species. Man can host at least five of these, the most common are HCoV-229 and HCoV-OC43 [1,4]. And this pandemic has caused a huge freezing on social and economic life around the world.

The first cases of COVID-19 were linked to a live animal market in Wuhan, in China, suggesting that the virus was originally transmitted from animals to humans. Human-to-human spread occurs through contact with infected secretions, primarily through contact with large respiratory droplets, but it can also occur through contact with a surface contaminated with respiratory droplets [5].

Actually, there is no many acknowledged effective special treatments for SARS-CoV-2 infection despite of many treatment used such as

hydroxychloroquine and chloroquine because of its cellular mechanisms of action [6, 24].

The goat milk and its products are therefore an essential niche in the total dairy industry sector besides production differences, goat milk differs from cow milk in having better digestibility, alkalinity, buffering capacity and certain therapeutic values in medicine and human nutrition [17], Milk derived bioactive peptides play vital roles in human health and nutrition, immune modulating peptides and casein phospho-peptides are the most favorite bioactive peptides for application to foodstuffs formulated to provide specific health benefits and pharmaceutical preparation [18]

Traditional medicine uses products extracted from plants and animals to treat several diseases related to many viral and bacterial infections [7, 22].

The present study aim was to investigate the epidemiologic evidence of the antiviral characteristics of ancient butter goat in the treatment of COVID-19 infection compared to its use on traditional medicine for lung infections.

## Methods

### Patient and study design

The study project was lunched from Laboratory of Biotechnology of Bioactive Molecules and Cellular Physiopathology of University of Batna, the patient diagnosis was done at Pasteur Institute of Algeria (<https://www.pasteur.dz/fr>). Symptomatic patients suffering from fever, cough and respiratory disorders was submitted to SARS- CoV- 2 analysis by PCR-rt assay for RNA from a nasopharyngeal sample [8]

### Population of study

All patients treated with ancient goat butter are from Batna, Algeria, their median age is 41,33 years;

27-63 years, and composed of 9 females and 18 males, 13 patients were from the same family, all patient was putted on containment after positive diagnosis.

### Ancient Butter goat treatment

The butter goat is prepared with a traditional protocol which is based on the use of and traditional chum, after the butter production it will be saved and stored on dark place at least for thirty years.

All patients have used a goat butter which was stored for more then 30 years, with a dose of 3 g twice a day, before sleeping and before the breakfast for a period of 15 days without taken any other treatment.

### PCR Assay

SARS-CoV-2 RNA was assessed by real-time reverse transcription-PCR with the utilization of a hydrolysis probe-based system that target the gene encoding the envelope E protein 20. [9].

### Statistical Analysis

Data were expressed as mean  $\pm$  SD, or percentages, as appropriate. To compare differences between the two groups, mean values and percentages were used between the two groups by chi-square ( $\chi^2$ ) test. Statistical analyses were performed using the Graph pad Prism 6.  $P < 0.05$  (two-tailed) was considered to be statistically significant.

## Results

### Participants

A total of 27 positives SARS-CoV-2 patients were treated and auto-medicated at least 15 days with the ancient goat butter with no combination of any other treatment, the median age of patient was 41,33 years ( ranging from 27 to 63 years ) with a Male/Female sex ratio 2.1, 20%of these patients had at least one chronic condition known to be a risk

factor for the severe form of COVID-19 with diabetes, hypertension and chronic respiratory disease being the most shown. 100% of selected patients presented the same symptoms such as fever, cough, tasting loss and respiratory disorder. A total of all patients had a goof clinical outcome in which 20 patients had all the symptoms disappeared after the first week of the treatment, the seven other patients showed no clinical of any symptoms after 13 days of the treatment.

Regarding the test of Chi-square ( $\chi^2$ ), there is no significative difference ( $P = 0.47$ ) between the severity rate of symptoms between male and female ([Figure 1](#)).

### Viral clearance

Thirteen patients 48,1 %, have been retested by PCR-rt and they had negative viral loads by day 15 post onset of treatment. In addition, seven patients 25.9% were tested by a quick tests kit and showed their healing, the rest of seven patients 25.9% didn't exhibited any post treatment test but they didn't show any symptoms after one month of the cure.

According to our results, the percentage of men cured of coronavirus is (55.55%) against (33.33%) in women, with no significant difference ( $\chi^2 = 1,187$ ;  $P > 0.05$ ) (**Table 01**).

## Discussion

Our results disagree with other researchers who have found that the immune response against the virus is less important in males than females.

Dr. Kyle Sue has demonstrated the effect of the sex hormones, estrogen and testosterone, on the immune system response, where the X chromosome carries the greatest number of genes in the human genome, possibly also contributing to a higher immune response in the woman (as well as a female preponderance of autoimmune diseases) [13, 14]. So, we believe that the ancient goat butter influenced the immune response between the two

sexes and proved an equal effect between our patients.

The efficacy of certain tested treatment for COVID-19 such as the combined hydroxychloroquine and chloroquine in France Marseille , parenthesis medical hope for treating this infection versus the results showed by the mentioned study [10] , unfortunately this treatment is not allowed in many countries around the world following the debate concerning the side effects of the hydroxychloroquine especially for a patients with heart diseases [11], generally the most common chloroquine and hydroxychloroquine side effect are some digestive system symptoms such as abdominal discomfort , nausea and vomiting [12], till now SARS-CoV-2 poses two major challenges to researchers and healthcare system which is the therapeutic management of patients and the search for a complete treatment and the prevention of a vaccine .

In the present study, we tested the hypothesis of the efficacy of traditional treatments for COVID-19 and among these treatment we chose the ancient goat butter to be tested on treating SARS-CoV-2 infection because of its use on the traditional medicine for respiratory infections , the result of our study report the outcomes of 27 COVID-19 patients treated with ancient goat butter with no combination of another treatment from the time of diagnosis. The range of severity of SARS-CoV-2 sprawls from benign symptoms to grave respiratory distress [1]. We assessed 27 patients who received the treatment twice a day for all period of the treatment and the results are encouraging comparing to many other tested treatments.

It is true the we don't know yet the exact mode of action of the ancient goat butter more than what's described on the oral legacy in the Aurés region of the east of Algeria that it activates the immune system and have a huge activity against viral infection and respiratory diseases system.

the explanation that justifies the effectiveness of our results can be explained from a few researches that has been done on goat milk and confirm that is important for prevention of cardiovascular disease, cancer, allergy and microorganism and used for

stimulation of immunity. Goat milk play a key role on immune defense by exerting antioxidant and anti-inflammatory effect in the organism [16], Ancient goat butter contain many important bioactive lipids which have an important role on the system immune activation such as conjugated linoleic acid (CLA), in term of immune response potential (CLA) can modify many mediators of immunity response such as immunoglobulins , cytokines and eicosanoids[18].

In addition to that, (CLA) involved in the anti-inflammatory response by reducing the production of pro-inflammatory cytokines associated with cancer and many other immunopathologies in the organism [18].

Goat milk and its derivatives intervene in the treatment and prevention of cardiovascular diseases by lowering effect on plasma cholesterol following to their richness in medium-chain triglyceride (MCT) including caprylic and capric fatty acids [19].

Lactis and Enterococcus Durans Strains Isolated from Goat Milk have a function of Inhibition of Herpes Simplex Virus 1 (HSV-1) and Poliovirus (PV-1) by Bacteriocins From Lactococcus Lactis Subsp [20].

All discussed results can could put links between the biological activities of goat milk and the therapeutic potential of its ancient goat butter against COVID-19 diseases.

### Conclusion

COVID-19 is a global risk to humanity, and its impacts on health are yet to be determined. Since the development of new drugs and vaccines will take at least a year, in the main time the disease continue to spread very fast around the world[23] , despite many tested drugs such as hydroxychloroquine and chloroquine[26] , remdesvir and lopinavir/ritonavir [25], have shown promising results, but the side effect of some drugs put their use in severe discussion [21].

The encouraging results of our study which shows the positive effect of ancient goat butter for 27 patients tested with CoV-SARS-2, should be used to study deeply this product for understanding it's biochemical and microbiological compositions to highlight its mode of action.



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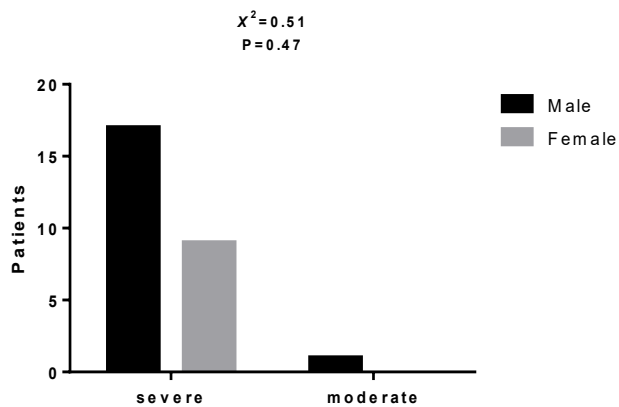
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Table 01. Prevalence of Covid-19 in both sexes after 15 days of treatment.

Number of Samples	Men	Women
Number Processed	18	9
Number Not infected	10	3
Percentage	55,55%	33,33%

Valu  $\chi^2 = 1.187^{NS}$  NS: non-significant (P=0.27)



**Figure 01.** Trend data of clinical classification of severity in a Case series of COVID-19. Numbers of cases of men or women in different clinical classes of severity.