

How to make an antiviral saline-carrageenan nasal spray at home

By

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[Link to my Google Scholar Profile/Page](#)

Coronaviruses are a family of viruses which includes those that cause the common cold, Middle East Respiratory Syndrome (MER) coronavirus, Severe Acute Respiratory Syndrome coronavirus (SARs), and the novel coronavirus 2019 or COVID-19. Given the current COVID-19 global pandemic people are naturally wondering what preventative measures will help lessen the likelihood they will get infected and, for those who are infected, what they can do to help reduce the severity and course of their disease.

The CDC has widely publicized guidelines for preventing contracting the COVID-19 virus and the Internet is literally awash in articles, tweets and such concerning drug & vaccine research & clinical trials as well as the off-label use of some drugs by physicians in their COVID-19 infected patients.

As such I will not rehash all this. I will however provide links to blog entries I have made concerning an antiviral spray coating for cotton masks that anyone can make at home plus ones regarding American scientist Richard Cheng, MD, PhD *et al* and high dose ascorbic acid to reduce COVID-19 caused lung inflammation and systemic sepsis. Here they are:

[COVID-19 turnarounds in 50 hospitalized patients \(moderate to severe\) – no deaths — results reported during an international video medical conference](#)

[Antiviral coated masks preventing infection with COVID-19](#)

For those looking for a technological way to kill viruses and such in offices, rooms, etc: [Far-UV technology kills COVID-19 & bacteria & fungi in offices, rooms, etc. \(Far-UV doesn't penetrate skin or eyes\)](#)

This brings me to another do-it-at-home measure that could conceivably prevent COVID-19 virus particles that enter the nose (its primary point of entry into the human body according to many infectious disease experts) from gaining a foothold as well as possibly impacting the course of a COVID-19 infection once it is underway: **a saline-iota carrageenan nasal spray.**

Carrageenan may sound familiar as it has been a part of the culinary world for some time now (to thicken soups and such mainly). The carrageenans (there are many) are [sulfated polysaccharides](#) from Rhodophyceae seaweeds (red algae). The 3 forms in commercial use are

kappa carrageenan, iota carrageenan and lambda carrageenan. It is the iota variety that concerns us as it has been found to be broadly active against various respiratory viruses such as human rhinovirus (hRV) 1a, hRV8 and human coronavirus OC43 in various lab studies and also when used in the form of a saline-carrageenan nasal spray by adult & pediatric rhinovirus (common cold) sufferers in various randomized controlled clinical trials.



https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4236476/pdf/40248_2014_Article_183.pdf - Carrageenan nasal spray in virus confirmed common cold: individual patient data analysis of two randomized controlled trials

Conclusions

In conclusion, **nasal application of carrageenan spray in children as well as in adults suffering from virus-confirmed common cold reduced duration of disease, increased viral clearance and reduced relapses.**

Therefore, carrageenan nasal spray can be regarded as a safe and effective treatment with a high potential for reducing social and economic burden caused by common cold.

<https://journals.plos.org/plosone/article?id=10.1371/journal.pone.0014320> - Iota-Carrageenan Is a Potent Inhibitor of Influenza A Virus Infection

https://www.researchgate.net/publication/275238642_Non-Clinical_Safety_Evaluation_of_Intranasal_Iota-Carrageenan - intranasal application of 0.12% carrageenan solution found to be safe (Animal models).

Of course, while the human rhinovirus (hRV) and COVID-19 both belong to the coronavirus family of viruses, it is not known if a saline-iota carrageenan nasal spray will have the same effects on the COVID-19 virus as it does the hRV. However, considering the lack of severe adverse effects reports in the controlled studies (such as table 7 on page 10 of [this study](#)) with using a 0.12% carrageenan nasal spray, it seems a low risk form of COVID-19 disease prevention & intervention.

The question arises: where does one buy a 0.12% iota carrageenan nasal spray? Following a fairly thorough online search using “iota carrageenan nasal spray” and “carrageenan nasal spray” as key phrases I was unable to find a single such product for sale. Since iota carrageenan is sold on the Internet in powder form for use in preparing various recipes, I decided to come up with step-by-step way for people to create a suitable iota carrageenan nasal spray at home.

Mindful that most people do not have labware, milligram scales, and such in their homes, I directed my efforts to coming up with a way to manufacture a ~0.12% iota carrageenan nasal spray using the utensils and such most folks have at home plus a few items (saline nasal spray, iota carrageenan powder, Polysorbate 20 liquid) that can be readily bought online.

Here is what is needed

One or more bottles of 1.5 fluid ounce (44 mL) saline nasal spray. These are sold in most pharmacies and also online. Buy at least one bottle for each resident or family member in your home. There is **no** sharing of a bottle of spray! .Dad has his own so labeled or otherwise identified bottle for his use only, Mum has her own bottle for her use only, each child or guest or renter or such as their own bottle, etc. (Many viruses can live for days on surfaces)

A small quantity of iota carrageenan powder, say 2 to 4 ounces. It is sold through retail vendors galore online including many affiliated with Amazon and Walmart.

A stainless steel teaspoon.

A meat or yogurt thermometer.

A small (2 oz or 4 oz) bottle of polysorbate 20 (Should be clear and syrupy. Many beauty supply places sell this. But if not, it is sold online from all kinds of vendors.

A small plastic or stainless steel funnel that will fit in the saline spray bottle opening. You can get by without it but might end to make a mess without it.

A small pan or other metal container suitable for heating a small quantity of liquid on a stovetop burner (Use stainless steel and not copper, iron or other metals or metal alloys)

An oven mitt or pot holder.

Paper towels.

Here is how to make up a single bottle of ~0.12% iota carrageenan nasal spray:

Unscrew and remove the cap top and nozzle assembly from a 1.5 oz (44 mL) bottle of saline nasal spray and lay them aside on a clean sheet of paper towel or a disinfected surface.

Pour the contents of the spray bottle into your heating pan or container and place it on a burner and then switch the heat on (low or medium low setting).

Now place a small plastic or stainless steel funnel in the saline spray bottle opening.

Next, scoop up 1/32 of a teaspoon of iota carrageenan and lay this tsp on a clean paper towel or disinfected surface.

As the saline solution in the pan or container heats up, insert a meat or yogurt making thermometer about midway into the liquid (Do not rest it on the bottom of the pan or container). When the temperature approaches 158F/70C, remove the thermometer and lay it aside. Then take the teaspoon with the iota carrageenan and stir it into the hot liquid. Now shut off the heat and remove and set aside the teaspoon, then move the pan or container to a cold burner or other surface.

Clean the stainless steel teaspoon thoroughly with soap and water and dry it with a clean paper towel. Then use it to occasionally stir the hot liquid which is now cooling down.

Once the saline & iota carrageenan liquid has cooled to room temperature, add 1 drop of Polysorbate to it and stir the liquid well.

After this, pour the saline-iota carrageenan-polysorbate liquid blend into the funnel and back into the saline spray bottle. Place the pan or container aside and then reinsert the nozzle assembly back into the bottle opening and put the screw-top on it and tighten it.

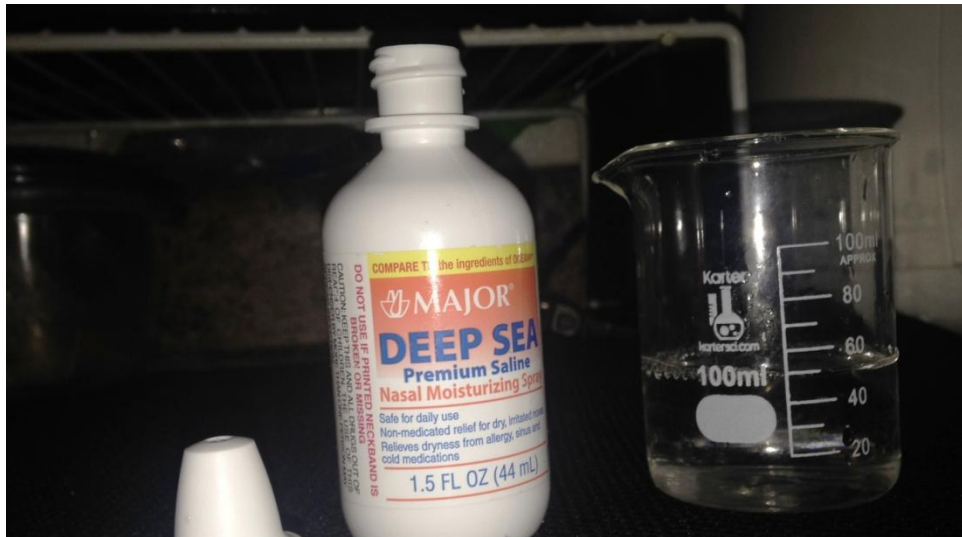
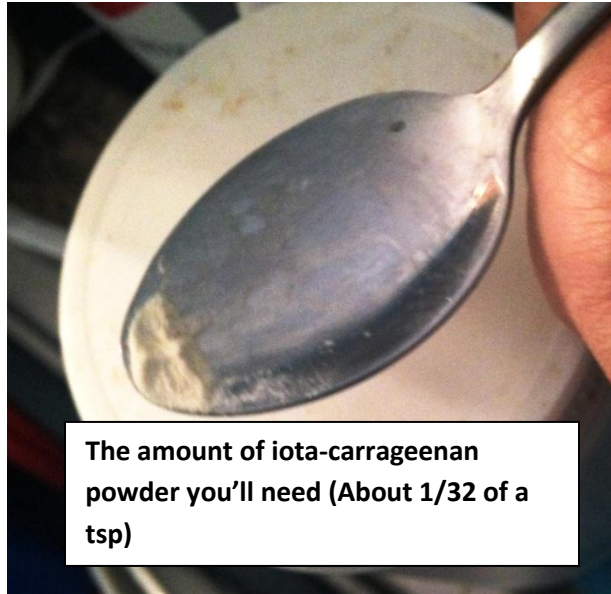
Label your spray bottle with the date and the name of the sole user of it. If you have room on your label add "Shake well before using" to it (Just to remind you or the designated user to shake the bottle vigorously before using it).

Now place the bottle in your medicine chest or (if you have children) in a cabinet that is child proof or otherwise out of their reach.

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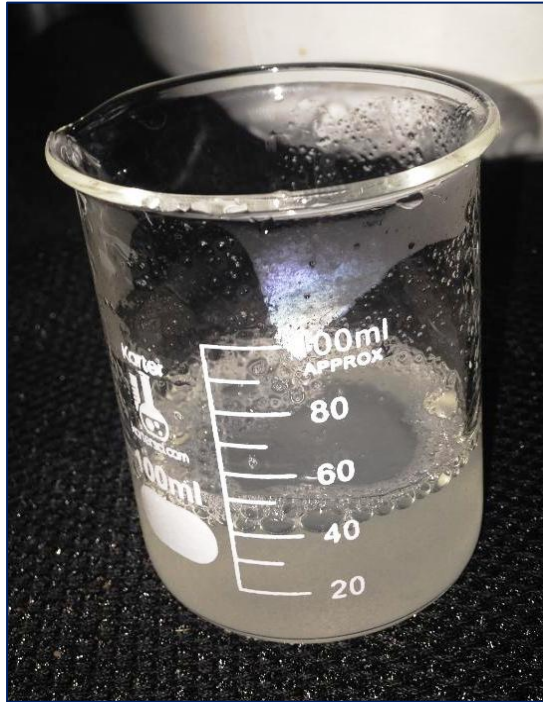
Nasal spray production photos & text



Take a bottle of 44 mL (1.5 fl. Oz) Saline Nasal Moisturizing Spray (0.65% saline) and remove the screw-top cap and the nozzle and set these aside.

Pour the contents of the spray bottle into a small pan suitable for heating up on a gas or electric stove burner.

H (I poured the contents of my bottle into the 100 mL beaker on the right)



Hot carrageenan solution cooling off

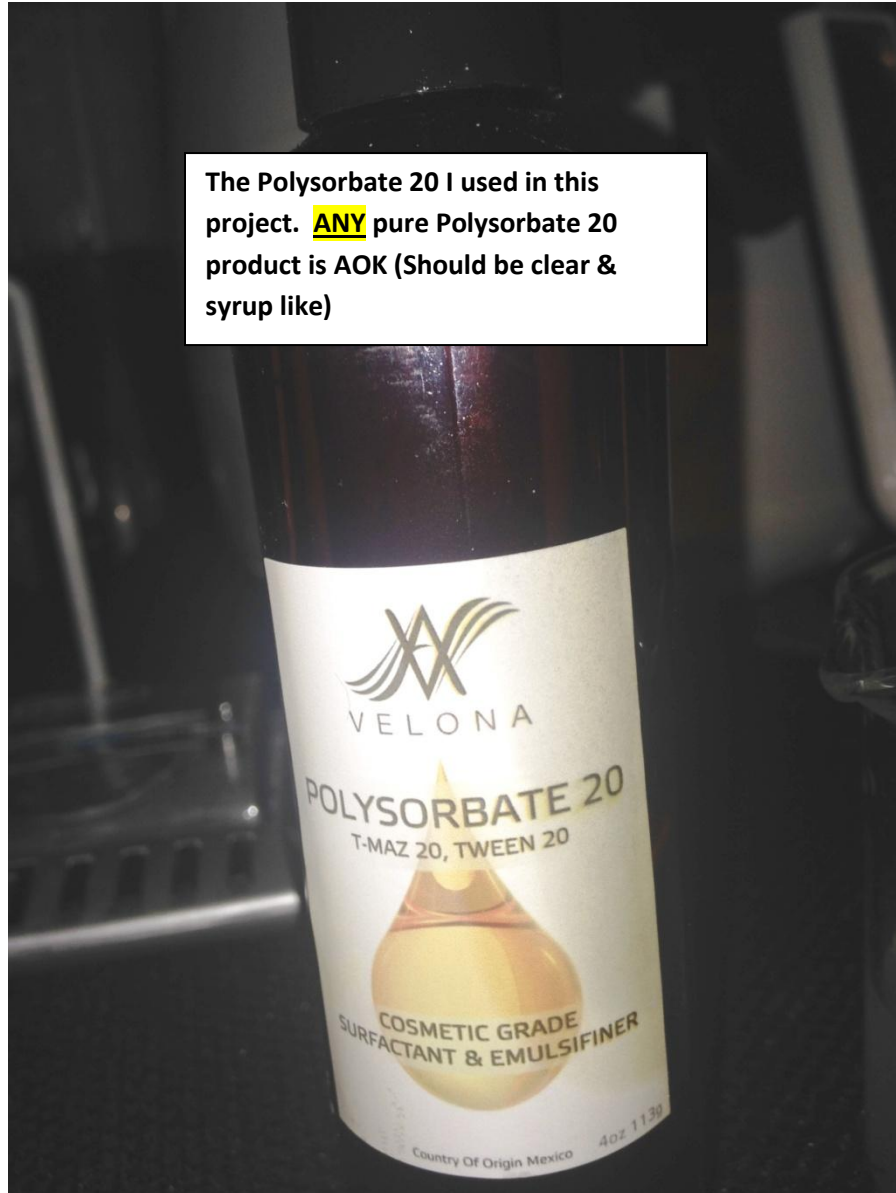
Heat the 44 mL of saline solution to 158F/70C (I used a lab thermometer to determine the temp in the beaker while being heated. A meat or yogurt thermometer should work as well).

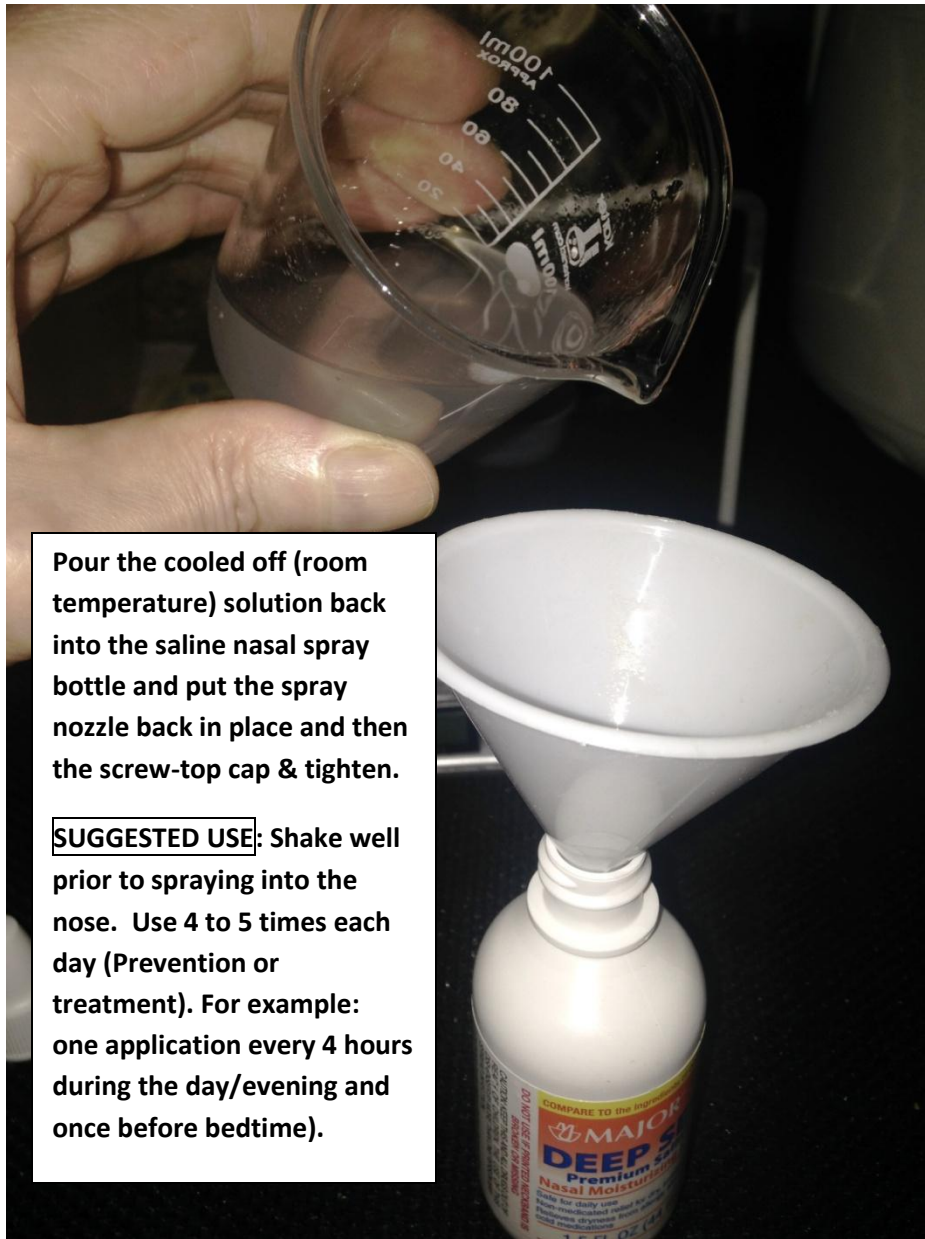
Once the saline solution has reached 158F/70C, add the iota carrageenan powder to it and stir with a stainless steel teaspoon (One you washed thoroughly with soap & water & dried beforehand).

Cut off the heat and remove the hot container (using an oven mitt or pot holder!) to a cold burner and allow to cool to room temperature.

Once it is cool add 1 drop of Polysorbate 20 and stir it in.

The Polysorbate 20 I used in this project. **ANY** pure Polysorbate 20 product is AOK (Should be clear & syrup like)





Pour the cooled off (room temperature) solution back into the saline nasal spray bottle and put the spray nozzle back in place and then the screw-top cap & tighten.

SUGGESTED USE: Shake well prior to spraying into the nose. Use 4 to 5 times each day (Prevention or treatment). For example: one application every 4 hours during the day/evening and once before bedtime).

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