**HISTORICAL RELATIONSHIP OF AGRICULTURE, ALCOHOL AND MEDICAL DISINFECTANT IN HUMAN CIVILIZATION   
(IN THE PERSPECTIVE OF THE COVID-19 ATTACK)**

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Recent condition is never predicted by experts in any field, whether economists, political experts or even health experts, in fact pandemic always come suddenly and massively, so that requires quick and appropriate responses in dealing with them, so as not to cause casualties in a huge amount.

History shows, outbreaks of infectious diseases have occurred hundreds or even thousands of times, even since the prehistoric era. Whether it's on a large scale that causes a pandemic or on a small scale in the form of an endemic in a region. Adherents of evolution theory believe that pandemic is a natural process, in natural selection. As a struggle for life, which species battle is the most superior and able to survive to remain the inhabitants of this earth.

In the prehistoric era, the pandemic did not cause radical change. The reason, due to interaction between humans is still fairly simple. The community is still nomadic. Living in small groups that are isolated from other groups. This factor causes many infectious diseases to not spread to pandemics. The opportunity for inter-group transmission is relatively small. This is significantly different since the era of human civilization began to recognize farming, living settled, building communities, the scale of the threat of infectious diseases or epidemics becomes larger. The construction of community centers increasingly facilitates the spread of new diseases due to high interactions within the community.

There are always actions carried out by humans in the face of a pandemic attack, prevention efforts carried out as a preventive measure, then various experiments and research are conducted to find effective treatment methods that can kill the cause of the pandemic. For example, preventive measures taken to prevent Covid-19 attacks as a global pandemic are the use of disinfectants in various forms of their products, one of which is the use of hand sanitizers, alcohol-based liquids or gels that are considered capable of killing pathogens in the hands effectively, like this product, other disinfectant products are also alcohol based.

Alcohol use cannot be separated in the practice of medicine in the community. Alcohol guarantees tools and body parts related to the practice of free bacteria and other disease-causing organisms (sterile).

Quoted from Morocco World News, alcohol production has actually been around since 2000 BC in human civilization. But at that time alcohol was used as a beverage ingredient, not a disinfectant to maintain hygiene. The earliest known evidence comes from 7,000 BC in China, where residues in clay pots reveal that people make alcoholic drinks from fermented rice, millet, wine, and honey. In a few thousand years, cultures around the world ferment their own drinks. Ancient Mesopotamia and Egypt made beer all year round from stored cereal grains.

An explanation of the history of alcohol production certainly cannot be separated from the history of agricultural development in human civilization, because the raw materials for making alcohol are all derived from agricultural products. Other sources cite evidence in China showing the existence of millet and rice since 6000 years BC. Southeast Asian people have known the cultivation of lowland rice at least during the 3000 years BC and Japan and Korea since 1000 years BC. Ancient Egyptian society (4000 years BC) and Ancient Greece (3000 years BC) were well acquainted with the cultivation of grapes and olives. These ancient agricultural products were the main ingredients in making alcohol at that time, and this showed evidence that there was a close relationship between the development of agriculture with the history of the development of alcohol production in the past. The history of agricultural development has subsequently become the basic foundation for the formation of culture.

The use of alcohol as a disinfectant was first carried out by Muslim scientists Al-Razi or Rhazes. Al-Razi's breakthrough is found in the book *Al-Hawi* or *Al-Hawi Fi Altibb*, which is interpreted as The Comprehensive Book on Medicine. Al Razi stressed the importance of using alcohol as an antiseptic before, during, and after surgery. Clean wound plays a big role in the success of the surgery. The Middle East Health website said, Al-Razi knew the connection between bacteria and the incidence of infection. As a chemist, Al-Razi realized alcohol could be used as a very effective disinfectant. In addition to knowing the other uses of alcohol, Al-Razi also discovered sulfuric acid which played an important role in the progress of human civilization.

This method of disinfection with alcohol was then introduced at the first hospital in Baghdad. This hospital was founded by the Caliph Harun Al-Rasyid in 805 AD. This practice then spread throughout the Islamic territory, because it was proven to be able to increase the success rate of life of patients undergoing surgery. The discovery of alcohol as a disinfectant reached Europe which later adopted the method. Alcohol in Arabic is written as *Al-Kuhul* which means the essence of an ingredient or essence. The naming refers to the distillation method used to obtain alcohol.

Nowadays, alcohol is not only used in maintaining the hygiene of medical devices and practices. Various antiseptic products used by ordinary people have used alcohol as an active ingredient. Maintain hygiene with alcohol-based antiseptic products proven to be able to prevent Covid-19 infections. The principle mechanism of action of alcohol on microorganisms including viruses is to denaturate proteins and damage cell membranes.