Dandelion, a Pest, or a Remedy? A Trends Analysis through Big Data

Maslichah Mafruchati[1]*

[1]Department of Veterinary Anatomy, Faculty of Veterinary Medicine, Universitas Airlangga, Indonesia
*E-mail : maslichah-m@fkh.unair.ac.id
Mobile No.: +6281231783999

Correspondance: Mulyorejo Street, C Campus of Universitas Airlangga, Surabaya (60115), Indonesia

ABSTRACT
Drugs can be used to treat the symptom of COVID-19, but still considered by medical experts due to their side effects. Dandelion can be used as an alternative medical treatment which has less hazardous side effect. This study has an objective to observe the trends and relevance point of information about dandelion in the United Kingdom (UK) and Sweden big data. This study is quantitative, using a data mining approach in collecting data. The samples are a topic about dandelion in UK and Sweden big data. Data is analyzed using Vosviewer software. The result shows that both the UK and Sweden show a significant popularity point of dandelion while COVID-19 cases were in a critical situation. Both the UK and Sweden consume dandelion along with other ingredients as the herb. It can be concluded that dandelion is not just a pest, but useful her for COVID-19 treatment.

INTRODUCTION

The emerging of the new pandemic in the global world named coronavirus or COVID-19 by SARS-CoV-2 causes mass disruption not only in the economic sector but also in the society's way of life. This virus is so contagious that the number of positive cases of people infected by this virus keeps increasing rapidly [1]. Coronavirus can be transferred to other people by physical contact. The government of each country has issued of lockdown to confine the number of more people getting infected. People are forced to follow the new medical protocol to avoid getting infected by other suspected people. This has happened because there is no precise treatment to cure this virus. People are kept to follow the procedure from the official government to make less contact with others as much as possible [2].

The structure of SARS-CoV-2 provides some clues about how the virus can infect. This virus has a shape of the pointed ball that can be identified from a nail attached to a protein called ACE2, which is found on the cell surface [3]. Shang in his study states that the exact contours of the SARS-CoV-2 shape allow it to attach much more strongly to ACE2 than the virus that causes SARS in the past. Moreover, SARS-CoV-2 is an RNA type virus that can be mutated into a new variant, based on the condition of the body [4].

There are some methods to avoid being infected. One of them is to increase the immunity system of the body. Because there is still no definite drug or vaccine that can tackle this global pandemic, increasing the immunity system is the obligation for society besides implementing social distancing protocol [5]. People with chronic disease will be likely infected with SARS-CoV-2 easily. Mozaffarian in his study states that chronic diseases can weaken the patient's immune system and led the SARS-CoV-2 to spread its antigen with ease. Thus, it adds more reason for people to boost their immune system [6].

Besides, most chronic disease patients also have a problem with their internal organs. When attacked by the SARS-CoV-2, the problem to these organs can become more severe; causing the symptom of COVID-19 appeared more severe in the human body. Not all people infected with the Coronavirus will experience severe symptoms of COVID-19 in the form of shortness of breath, chest pain, and high fever. Not all of the suspects of coronavirus show significant symptoms that can be seen by medical checkup. There are some suspects with COVID-19 only show mild symptoms such as flu. Some have no symptoms at all despite being positively infected with the Coronavirus [7].

Plants are the best way to increase the immunity system. Moreover, plants have less significant side effects than drugs to the human body. Plants also contain enough fiber that is good for digestion. There are many parts of plants that can be consumed to boost immunity system such as from Rhizoma family, fruit with high vitamin, leaves as a vegetable, stem, or even tree skin [8]. One of the simple plants that are even ignored by humans as mere pests is dandelion. Dandelion is a plant that can grow freely in a meadow or open field, as long as there is enough sunrays and nutrition inside the soil. Dandelion often grows along the weeds and grass and disseminate its seed by dispatching its flower-like parachute and gliding along the wind [9].

Dandelion can stimulate the pancreas to produce more insulin. Dandelion is a natural diuretic that causes more urination, helping to remove excess sugar from the body [10]. Excess sugar can cause kidney disease, and diabetes that is more potent to be infected by SARS-CoV-2. Thus, Dandelion has anti-cancer effects that can disrupt cancer cells in the prostate and breast. Studies show that Dandelion root has a large impact on cancer cells (melanoma) that are resistant to chemotherapy, without harming healthy cells [9]. Based on the background above, this study has a purpose to observe the trends and relevance point of information about dandelion in UK and Sweden big data. The theoretical implication of this study is to be hoped used as reference to create more medical

discussion about the benefit of dandelion as a medicinal plant against coronavirus.

Material and Methods
General procedure
The subjects are United Kingdom or UK and Sweden for top countries with positive COVID-19 cases. UK ranked 9 in the country with the most positive cases, while Sweden is ranked 27 in July 2020. The data is downloaded into a CSV file and analyzed using Vosviewer software [11]. The samples are divided into two groups, relevance point and popularity points. The popularity points will be delivered into the graphic to shows the trends, while the relevance point will be delivered into the table. The relevance point is started from 0-10, which means that the more relevance a topic in big data, the higher the relevance point will be. For occurrence point is the keyword or related topic about dandelion in each topic being appeared in Google trends [12].

Detection Method
This study uses a quantitative method in conducting the research process. The data is gathered using the data mining method from Google Trends that connects to big data globally [13]. The inclusion criteria of the subject are countries with high positive cases of COVID-19, have no data in recovered number in Worldometer website or N/A, as well as have a topic of "dandelion" in the collection of data. The duration of the data is started on the first day of January 2020 until the 3rd of July 2020 [14].

RESULTS AND DISCUSSION

Table 1. total of occurrence of relevance point of topic related to dandelion in UK big data

Term	Occurrences	Relevance
Breakout	3	5.67
Burdock	2	5.67
Cow parsley	1	5.67
Dandelion	2	5.67
Honey	2	5.67
United kingdom	1	5.67

The table above shows that there are 6 terms with average relevance points. Each of them has a score of 5.67, which means that they have relevance with topic related to dandelion that appears in big data in the UK. Dandelion subject on the topic of "breakout" occurred mostly from other topics. It means that people try to look more information about dandelion as one of the remedies for Covid-19 breakout. Dandelion also occurred in other topics related to spices or seasonings such as cow parsley, honey, and burdock.
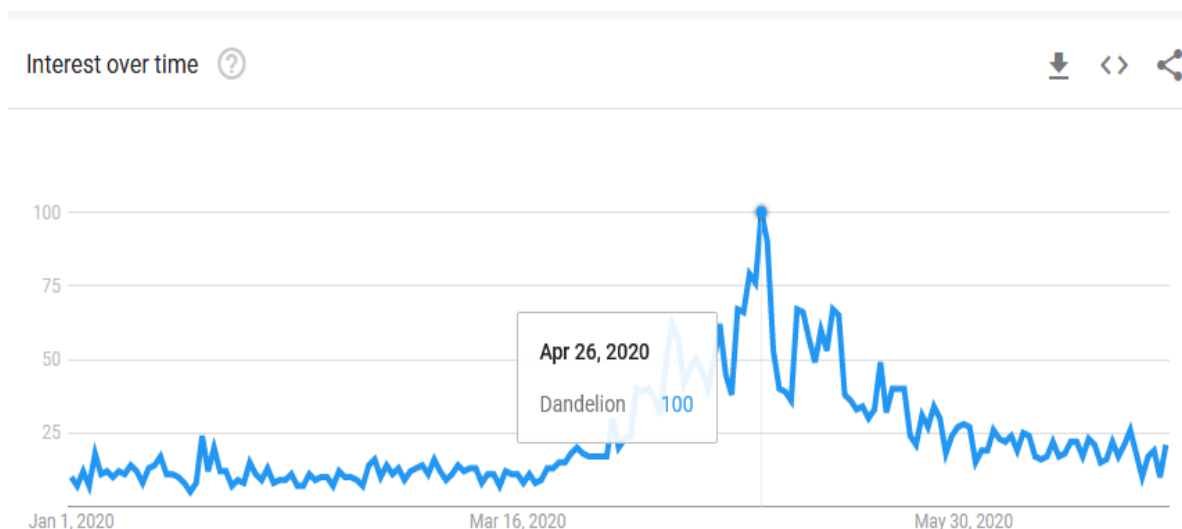
Figure 1. Graphic of the popularity of information about dandelion in UK big data

Figure above shows that the popularity points of information seeking about dandelion are rising significantly around April-May. The trend hit its peak at the end of April and decreased significantly in May. The trends now keep stagnant in June. It means that many internet users in UK searched for more information about dandelion at the end of April to the beginning of May.

Table 2. Total of occurrence of relevance point of topic related to dandelion in Sweden big data

Term	Occurrences	Relevance
Dandelion	2	9.78
Sweden	1	9.78
Breakout	3	4.61
Chicory	1	4.61
Common daisy	1	4.61
Honey	2	4.61

The table above shows that the dandelion topic has more relevance points in Sweden big data than the UK. The

topic about dandelion itself has relevance points more than 9.78, which means that the topic about dandelion is demanded by internet users. The topic about Sweden also has the same score of relevance point, which means that the dandelion topic is favorable in Sweden. Other topics that are related to seasoning such as chicory, common daisy, and honey have a lower score of relevance point, 4.61 for each. Topic about breakout has the same score, 4.61, lower than the UK "breakout" score.

Figure 2. Graphic of the popularity of information about dandelion in Sweden big data

The figure above shows that dandelion popularity points is also raised its peak on the 9th of May. Then the trend of popularity was fluctuating around May. The trend decreased so much until under 25 points in May but raised again so fast it reached more than 75 points. The information keeps fluctuated until the end of May and reached a point lower than 25 at the start of June. It means that lower internet users demanded information related to dandelion in June. Similar to the UK, popularity points of dandelion information was significantly lower in June and higher in May in Sweden.

Based on the result above, this study finds that information about dandelion is more demanded by internet users in Sweden, rather than in the UK. Moreover, some topic in Sweden big data has bigger relevance points than the UK. It can be concluded that dandelion is more demanded as a remedy against coronavirus based on the data that are presented above. Dandelion is considered a plant that has a lower side effect to be consumed than a drug [15].

Dandelion is commonly recognized as a simple shrub that has no value, because it can grow anywhere along grass and weeds. Moreover, because dandelion is not a beautiful flower like a rose, sunflower, or jasmine, it is always considered as pest along with weeds, living among shrubs on grasslands, high cliffs, mountains or even places that are difficult to reach by a human. Although dandelion has an unpopular reputation because it is commonly recognized as a pest plant, dandelion often used by ancient Chinese civilization as medication to cleanse the blood and improve the immunity system of the body [16]. Dandelion can also stimulate the pancreas to produce insulin, which is more demanded for the patients with diabetic problems. Dandelion is a natural diuretic that can stimulate the body to produce more urine, helping to remove excess sugar from the body. Excess sugar can cause kidney disease and diabetes [10].

Dandelion is easy to be proliferated by disseminating its flower, either by blowing it with wind or just simply put the flower into the soil. The characteristic of dandelion which is easy for agriculture makes it a perfect supply of herbs for medication usage. Dandelion is perfect herbs for avoiding diabetes or decreasing blood sugar because of its polyphenols which work as antioxidants. Since coronavirus attack people with pre-existing chronic disease such as diabetes, dandelion is a perfect herb to nurture the immune system. The abundant supply of dandelion and

easy breeding through agriculture makes dandelion appropriate for emergency treatment against COVID-19 [16].

UK is one of the countries with the highest positive cases of COVID-19 which has not reported the number of recovered patients globally. Drugs have to be tested before able to be used in clinical trials because it can cause hazardous side effects. One of the drugs is dexamethasone, which is widely used to treat inflammatory diseases such as arthritis, can reduce the death rate of COVID-19 patients until 30%. But the usage of such medicine is still under the receipt from the doctor to prevent malpractice due to stop in consuming this drug, which can cause loss of appetite, vomiting, drowsiness, and stomach upset. As a result, it needs alternative medication such as a traditional herb.

Luckily, dandelion has been consumed by Englishmen as traditional food. Dandelion flower and bud can be made as vegetable for risotto. Table 1 shows that there are some ingredients besides dandelion such as burdock, cow parsley, and honey that are become trends in the UK. Burdock is a kind of tuber that is come from a root that has benefits to cleanse blood circulation and avoid cancer cells. Cow parsley has anti-inflammatory and antibacterial which is useful for strengthening immunity [17]. Honey is also widely recognized as medicine for its antibacterial. Burdock and dandelion are commonly used together to make beer, while honey can be mixed for sweetener [18]. Figure 1 shows that dandelion popularity trends reached its peak in the UK at the end of April and kept falling until July. Geldsetzer states in his study that COVID-19 death in the UK reached its peak at the beginning of April and keeps falling until recently [19].

The result above from table 2 shows that Sweden has more topics that are related to dandelion. Besides dandelion, there is also a topic "breakout" which is related to COVID breakout at this time. There is also a topic about chicory, common daisy, and honey which are

useful as medicine. The roots of chicory can be used for heart failure, upset stomach, and high blood pressure. Chicory roots are consumed along with coffee to enhance the taste of the coffee. Dandelion is always mixed with chicory roots to make chicory chai drinks as substitution for tea and coffee [20]. Common daisy used for boosting immunity and anti-inflammatory, similar to cow parsley. Its flower buds can be eaten as salad [19].

Sweden popularity trends about dandelion reached its peak in May. Positive COVID cases in Sweden fall to lowest in July started in May. It can be inferred that the consumption of dandelion along other herbs such as chicory roots, daisy, and honey could help citizens to treat COVID-19 symptoms. Suziedelyte in her research states that the more people demand some object, the more information will be needed in the internet to enlighten them [21]. Similar to the UK, the popularity trends of dandelion in Sweden also kept falling until recently.

CONCLUSION

Based on the study above, it can be concluded that Dandelion is useful for medical treatment against COVID-19. Dandelion has a very less hazardous side effect compared to the drug which is used for medical purposes since it is a plant. Sweden has more topics that are related to dandelion than UK, depicted in the relevance point higher than UK. Dandelion in the UK is consumed along with other types of herbs such as burdock, cow parsley, and honey for cuisine. Similar in the United Kingdom, dandelion also commonly consumed in Sweden, along with chicory, common daisy, and honey. One of the popular drinks which mix dandelion with chicory is chicory chai. The result above also shows that the popularity point of dandelion both in Sweden and in the United Kingdom reached its peak due to the number of deaths of COVID-19 cases.

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