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Literature Study *Of Chamomile* (*Matricaria Chamomilla*) For *Generalized Anxiety Disordered*

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Abstract *: Chamomile (Matricaria chamomilla) is one of the most widely used herbal medicines worldwide. Scientific evidence is needed to increase the use of chamomile in treating generalized anxiety disorder . This study aims to find out information from various scientific publications regarding the benefits of chamomile (Matricaria chamomilla) for generalized anxiety disorder . The sources of this study were obtained by collecting data from research results of journals indexed in Google Scholar, Science Direct and PubMed with publication years 2016-2021. Based on the search results, 341 journals with relevant titles were found in the Google Scholar database , 17 journals were found in Science Direct , and 5 journals were found in Pubmed . After being adjusted to the inclusion and exclusion criteria, 5 journals were selected for review. This study uses a literature study method. Based on the results of the literature that has been obtained, chamomile can be useful for reducing symptoms of generalized anxiety disorder with moderate to severe sufferers. The flavonoid content in chamomile has an anxiolytic effect that can reduce the regulation of the hypothalamic pituitary adrenal (HPA) axis. Apigenin, which is a flavonoid, specifically binds to the gamma-aminobutyric acid (GABA) receptor. The dosage forms used are chamomile extract capsules and chamomile hydroalcoholic extract.*

INTRODUCTION

Nowadays many people suffer from various mental disorders, especially depression, anxiety, and insomnia (Putra and Septa , 2018) . Depression, anxiety, and insomnia disorders are considered the main causes of suicide and ischemic heart disease and are ranked second as the main cause of disability worldwide (Ferrari *et al* ., 2013) . *The World Health Organization* (WHO., 2017) states that depression and anxiety disorders are common mental disorders with the highest prevalence. More than 200 million people worldwide (3.6% of the population) suffer from anxiety disorders. Pollack , 2002 (in Mao *et al* ., 2014) said anxiety disorders were among the highest-ranking causes of mental health problems after drug and alcohol dependence, and

depression.

According to the Ministry of Health of the Republic of Indonesia in 2009, the prevalence of anxiety disorders in Indonesia itself continues to increase every year. Based on data from the Indonesian Ministry of Health in 2007, there were 450 million people who had to live with mental disorders and in the prevalence of adult individuals (aged 18 years and over) to the elderly, there were 11.6% who experienced emotional disorders, such as anxiety disorders and depression (Prajogo and Yudiarso., 2021). In adult individuals in Indonesia, there is an increase in emotional and anxiety disorders , in 2013 it was 6% and in 2018 it was 9.8% with the most common symptoms being headaches , sleep disorders, decreased appetite, and fatigue (Riskesdas., 2018) .

In humans, anxiety is a common emotion that is closely related to fear and serves as a mechanism for adjusting to the environment. Everyone also experiences anxiety from time to time. However, in patients with *generalized anxiety disorder* (GAD), this anxiety usually occurs repeatedly, chronically, and fluctuates at various levels of severity (Liu *et al* ., 2015) .

Generalized anxiety disorder (GAD) is a disorder characterized by excessive, irrational anxiety and worry about various events in daily life. This condition is experienced almost all day long, lasting for at least 6 months. Patients with GAD often experience comorbid mental disorders with panic disorder, obsessive compulsive disorder, and post-traumatic stress disorder and major depressive disorder (Hadisukanto and Elvira., 2017).

Symptoms that arise in people with *generalized anxiety disorder* are excessive anxiety in everything they do, difficulty concentrating, fatigue, headaches, cold sweats, rapid breathing, increased heart rate, trembling voice and limbs, nausea and vomiting and others. Many factors can influence anxiety, namely negative experiences in the past and irrational thoughts such as castatrophic failure, namely thoughts in individuals who think something bad will happen to them and the perfection of individuals who expect themselves to behave perfectly without any mistakes and make perfection a target in life (Putra and Septa., 2018).

Long-term use of drugs in patients *with generalized anxiety disorder* and some of the effects caused encourage the need for other alternative approaches . Herbal medicine has become a common topic that is often discussed today. Many plants can be used as a source of herbal medicine. Many plant species around the world have been scientifically studied and used as treatments for patients with mood and anxiety disorders. One of the plants used is *chamomile* (Gutiérrez *et al* ., 2014).

Chamomile (Matricaria chamomilla) is one of the most widely used herbal medicines worldwide. This plant grows to a height of approximately 30 cm from the ground, with wrinkled and branched stems, pale green leaves. The flowers are similar to daisies with white buds and yellow cores. These petals and cores are then used as herbal medicines presented in the form of tea, extracts, and capsules which are believed to have many herbal properties (Sharafzadeh *et al* ., 2011).

In an analysis of methanol extract of *chamomile flowers* , it was identified that the activity of apigenin and flavonoids in this flower works on the GABA A receptor so that it has antianxiety properties. In addition to antianxiety activity, *chamomile* also has antidepressant activity because it has an effect on patients with anxiety symptoms and comorbidity with depression (Gutiérrez *et al* ., 2014).

RESEARCH METHODS

The type of research used is Library Research (*Literature review/library research)* . Research with literature studies is a study whose preparation is the same as other research, but the

sources and methods of data collection are by taking data in the library, reading, recording, and processing research materials (Melfianora , 2019) .

In this study, the data or materials needed to complete the research came from scientific journals and scientific articles related to the benefits of *chamomile* (*Matricaria chamomilla*) for *generalized anxiety disorder* .

RESULTS

Based on a review of various sources of information obtained from several journals regarding the benefits of *chamomile* (*Matricaria chamomilla*) for *generalized anxiety disorder* , the following results were obtained.

1. Resources

   Research on literature study of *chamomile* (*Matricaria chamomilla*) benefits for *generalized anxiety disorder* aims to find out information from various scientific publications regarding the benefits *of chamomile* for sufferers of *generalized anxiety disorder* . Sources of information about the benefits of *chamomile* (*Matricaria chamomilla*) for *generalized anxiety disorder* are obtained from journals. The sources used are sources that have been published and can be downloaded online on *Google Scholar* , *Science Direct* , and PubMed. The sources used in this study use 5 literatures in the form of journals. The source criteria used in this literature study are national and international journals regarding the benefits of *chamomile* (*Matricaria chamomilla*) for *generalized anxiety disorder* . *Various sources of database* information used have been presented in table 3.1

Table 1. Database Information Sources

Source	Amount
Google Scholar	1
Science Direct	0
PubMed	4
Total number	**5**

2. Information obtained

   a. Journal recapitulation of the benefits *of chamomile* (*Matricaria chamomilla*) for *generalized anxiety disorder*

      The following is a list of journals that discuss the benefits of *chamomile* (*Matricaria chamomilla*) for *generalized anxiety disorder* . has been presented in table 3.2

Table 2. Benefits of *Chamomile* (*Matricaria chamomilla*)

No	Title	Researcher	Samples studied	Type of Preparation	Research methods	Results	Journal Name
1.	*Long-term chamomile (Matricaria chamomilla L.)*	(Mao *et al* ., 2016)	Humans aged ≥ 18 years with a DSM-IV *Axis* -I diagnosis of GAD	*Chamomile* dry extract capsules	*a randomized controlled trial*	*chamomile* therapy experienced milder GAD symptoms and better psychological well-being	*Phytomedicine* , 23(14), 2016

	treatment for generalized anxiety disorder: A randomized clinical trial		as a primary disorder			compared to participants who switched to placebo.	
2.	*Putative Antidepressant Effect of Chamomile (Matricaria chamomilla L.) Oral Extract in Subjects with Comorbid Generalized Anxiety Disorder and Depression*	(Amsterdam *et al*., 2020)	Humans aged ≥ 18 years with a DSM-IV-TR diagnosis of GAD	*Chamomile* dry extract capsules	*Randomized double-blind placebo-controlled trial*	*Chamomile* dry extract has anxiolytic activity that can overcome GAD and *chamomile dry extract* also showed a reduction in depressive symptoms in participants with comorbid GAD plus depression.	*The journal of alternative and complementary medicine* , 26 (9) , 2020
3.	*Short-term open-label Chamomile (Matricaria chamomilla L.) therapy of moderate to severe generalized anxiety disorder*	(Keefe *et al*., 2016)	Humans suffer from mild to severe GAD	*Chamomile* dry extract capsules	*open-label phase of a two-phase randomized controlled trial trial*	*Chamomile* therapy at a dose of 1,500 mg was well tolerated without severe side effects. Nearly a quarter of participants had rapid progress in this therapy, with 50% of participants experiencing a reduction	*Phytomedicine* , 23(14) , 2016

						in GAD-7 symptom scores obtained within 2 weeks of treatment.	
4.	*An exploratory study of salivary cortisol changes during chamomile extract therapy of moderate to severe generalized anxiety disorder*	(Keefe *et al* ., 2018)	Saliva of adult humans (>18 years) with a DSM-IV diagnosis of GAD as a primary disorder	*chamomile* extract capsules	*Open-label clinical trial*	Subjects experienced a significant increase in morning salivary cortisol and a greater decrease in cortisol from morning to the rest of the day, indicating a reduction in symptoms in people with generalized anxiety disorder (GAD).	*Journal of Psychiatric Research* , 20(4), 2018
5.	*Anxiolytic and antidepressant effects of matricaria chamomilla hydroalcoholic extract in a rat model of scopolamine*	(Ionita *et al* ., 2019)	Swiss mice weighing 25-35 grams	*Chamomile* hydroalcoholic extract	*One Way Anova* statistical test	*Chamomile* hydroalcoholic extract can eliminate the effects of scopolamine induced in rats. Scopolamine can cause increased anxiety and depression-like responses.	*Farmacia Journal* , 20(5), 2019

DISCUSSION

Chamomile with the Latin name *Matricaria chamomilla* is a plant that can be used to overcome various health problems. Various studies have been conducted to scientifically prove the benefits of *chamomile* for treating *generalized anxiety disorder* . In a literature study of the benefits *of chamomile* (*Matricaria chamomilla*) for *generalized anxiety disorder* , information was obtained from 5 selected research journals. The research was conducted by collecting various sources, then reading and including them in the research results.

Based on the 5 journals that have been found, there are several differences, namely the type of preparation, research method, sample studied, duration of trial, and phytochemical content. In this study, there were 4 journals that used *chamomile dry extract capsule preparations and 1 journal used chamomile* hydroalcoholic extract preparations . In the research method, each journal has a different research method. The research methods used were *a randomized controlled trial, randomized double blind placebo controlled trial, open label phase of a two phase randomized controlled trial, open label clinical trial , and Anova One Way* statistical test .

The samples used in the 5 journals found 3 of them used human samples, 1 journal used human saliva samples, and 1 journal used mice as the research subjects. With a trial period of 3 journals for 8 weeks, 1 journal for 38 weeks and 1 journal for 21 days.

In 5 journals that have been reviewed, most of the scientific articles explain that *chamomile* contains flavonoid chemical compounds that have anxiolytic effects that are useful for relieving symptoms of *generalized anxiety disorder* . Meanwhile, 1 other journal states that the content of *chamomile* is flavonoids consisting of apigenin-7-glucoside, luteolin, catechin, cynaroside and rutin. In addition to containing flavonoids, *chamomile* also has chemical compounds of chlorogenic acid and caffeic acid.

CONCLUSION

Based on the above research, it can be concluded that *chamomile* (*Matricaria chamomilla*) has flavonoid content consisting of apigenin-7-glucoside, luteolin, catechin, cynaroside and rutin. In addition, the content of chlorogenic acid and caffeic acid which act as antioxidants can reduce symptoms of *generalized anxiety disorder* (GAD) with moderate to severe sufferers. The dosage forms used are *chamomile extract capsules and chamomile* hydroalcoholic extract . The dose given for *chamomile extract capsules* is 1,500 mg per day and for *chamomile hydroalcoholic extract* as much as 25 and 75 mg / Kg BW of mice.

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