



Effect of aqueous extract of chamomile and LPS isolated from Aeromonas bacteria on some immunological and physiological variables in mice

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Keywords

chamomile ,LPS, immunological and physiological.

Abstract

Chamomile can work to heal some diseases and infections. Chamomile compresses, for example, heal skin infections quickly, and chamomile can also do the same work as antibiotics in healing infections. If something of it boiled and the person inhaled, he was able to quickly remove nasal and respiratory infections, and eliminate all existing germs within a short period. The mice were divided into three groups, the first group injected with LPS only, the second group injected with LPS, and the mice were given 0.5 ml of aqueous extract of chamomile plant, while the last group was control , The immunological tests included measuring the concentration of IgG, IgM ,IgA antibodies and complement protein C3, C4 and interleukin-2. The effect of aqueous extract of chamomile plant and lipopolysaccharide isolated from Aeromonas bacteria on the concentration of antibodies in the mice under experiment. The concentrations of these antibodies IgM ,IgG and IgA were 516, 416 and 583, respectively, compared to the control, 250, 230, and 250, respectively, also in the treatment that used lipopolysaccharides. As for the treatment that used lipopolysaccharides and rats were dosed with aqueous extract of chamomile plant, it was the best treatment and gave differences significantly significant compared to the control treatment and the treatment that used lipopolysaccharide only Where the concentrations of IgM, IgG, and IgA antibodies reached 683, 483, 516 compared to the control whose concentrations were mentioned higher. It was concluded from this study that the aqueous extract of the chamomile plant had a synergistic effect with the lipopolysaccharide isolated from Aeromonas bacteria in raising the humoral immunity and increasing the activity of complement proteins and had no negative effect on the body organs.

Article History

Received

3 Dec, 2021

Accepted

19 Mar, 2022

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Introduction

It is an annual herbaceous plant with a height of about 15-35 cm, its stem is fast-growing, many branches and blooms after 6-8 weeks of germination, and its leaves are alternating feathery and fragmented into small elongated, threadlike sections. The inner flowers are tubular and yellow. Chamomile grows in fields, on the edge of valleys, around houses and on rooftops in some countries.^(1,2,3) Chamomile flowers contain volatile oil at a rate of up to 1.5% of dry flowers. The oil is extracted using the steam distillation method. Chamomile oil is a viscous, heavy liquid, blue in color that freezes by freezing at zero degrees Celsius, and has the well-known chamomile smell.^(4,5,6) It is possible to obtain from chamomile flowers a percentage by weight of about 1-2% of volatile oils that contain alpha-bisabolol, alpha-bisabolol oxides A & B, and matricin, which is usually converted to chamazulene. Chamomile flowers also contain other active compounds such as apigenin, bioflavonoids, luteolin, and quercetin.^(7,8) The unique properties of chamomile are that it has an effect that resists the occurrence of dreadful dreams or nightmares in addition to being a general soothing for the body and soul together, and therefore it is useful in cases of insomnia, depression, fear and psychological crises in general, during which the chance of exposure to nightmares increases.^(9,10) Chamomile is useful for cases of digestive disorders and diarrhea. Chamomile also helps to expel gases generated in the intestines, calm nerves, antispasmodic and antipyretic, and chamomile is used in medical cosmetics.^(11,12) Azulene is the active substance that gives chamomile its healing effect, and one of its properties is that it, like olive oil, which contains unsaturated fatty acids, has many chemical affinities, and is quick to combine with other substances to form useful substances. In order to differentiate between the azulene found in chamomile and the azulene found in other plants, the chamomile azulene was called Sham azulene. It is blue in color and comes out of chamomile if tea is made from it or if its flowers are exposed to water vapor in laboratories.⁽¹³⁾ Chamomile can work to heal some diseases and infections. Chamomile compresses, for example, heal skin infections quickly, and chamomile can also do the same work as antibiotics in healing infections. If something of it boiled and the person inhaled, he was able to quickly remove nasal and respiratory infections, and eliminate all existing germs within a short period.⁽¹⁴⁾

Methodology

Aqueous extract of chamomile

To obtain the aquatic properties of the chamomile plant powder, 5 grams of the powder were weighed and placed in 1 liter beaker and soak for 10 minutes in 10 ml of distilled water, to complete volume to 200 ml of distilled water at a temperature of 75 °C, shake the solution, then filter the solution with cotton Then via filter paper 42 Whatman.⁽¹⁵⁾

Isolation and identification of *Aeromonas* bacteria

Isolation of these bacteria on their selective on Macon key agar medium, then they were diagnosed using vitek 2 device, then LPS was extracted.⁽³⁾

Injection and dosing of mice

The mice were divided into three groups, the first group injected with LPS only, the second group injected with LPS, and the mice were given 0.5 ml of aqueous extract of chamomile plant, while the last group was control.

Immunological tests

The immunological tests included measuring the concentration of IgG, IgM, IgA antibodies and complement protein C3, C4 and interleukin-2

Physiological tests

The Physiological tests included measuring the concentration of GOT, GPT and Alkaline phosphatase.

Result and discussion

Table 1 Effect of aqueous extract of chamomile plant and LPS isolated from Aeromonas bacteria on the concentration of antibodies in mice

Descriptive Statistics				
Dependent Variable: concentration of Antibodies mg/dl				
treatment	antibodies concentration	Mean	Std. Deviation	N
LPS	IgM	516.67	28.868	3
	IgG	416.67	28.868	3
	IgA	583.33	28.868	3
	Total	505.56	76.830	9
LPS and Aqueous extract of chamomile	IgM	683.33	76.376	3
	IgG	483.33	28.868	3
	IgA	516.67	28.868	3
	Total	561.11	102.402	9
control	IgM	250.00	50.000	3
	IgG	230.00	26.458	3
	IgA	250.00	50.000	3
	Total	243.33	39.051	9

Table 1 shows the effect of aqueous extract of chamomile plant and lipopolysaccharide isolated from Aeromonas bacteria on the concentration of antibodies in the mice under experiment. The concentrations of these antibodies IgM, IgG and IgA were 516, 416 and 583, respectively, compared to the control, 250, 230, and 250, respectively, also in the treatment that used lipopolysaccharides. As for the treatment that used lipopolysaccharides and rats were dosed with aqueous extract of chamomile plant, it was the best treatment and gave differences significantly significant compared to the control treatment and the treatment that used lipopolysaccharide only Where the concentrations of IgM, IgG, and IgA antibodies reached 683, 483, 516 compared to the control whose concentrations were mentioned higher As shown in Figure 1. We conclude from this that the aqueous extract has a synergistic effect in raising the concentrations of antibodies. Chamomile can work to heal some diseases and infections. Chamomile compresses, for example, heal skin infections quickly, and chamomile can also do the same work as antibiotics in healing

infections. If something of it boiled and the person inhaled, he was able to quickly remove nasal and respiratory infections, and eliminate all existing germs within a short period. Chamomile fumes can be used in the treatment of chest infections and pulmonary infiltrates. Here the water is heated in a pot on the fire and a little chamomile is thrown into it, then the head is covered with the pot with a large piece of cloth and the patient begins to inhale chamomile steam for at least a quarter of an hour, so the chamomile kills these germs and treats infections. Chamomile water is also used to treat the eyes and wash them well, but caution is advised and consult a doctor before doing so, and if chamomile tea is to be prepared, it should not be boiled in the water, but rather expensive water is poured over it, then filtered and drunk. Recent tests have proven that this method is the best way to extract the largest possible amount of azulene and other beneficial substances found in chamomile.

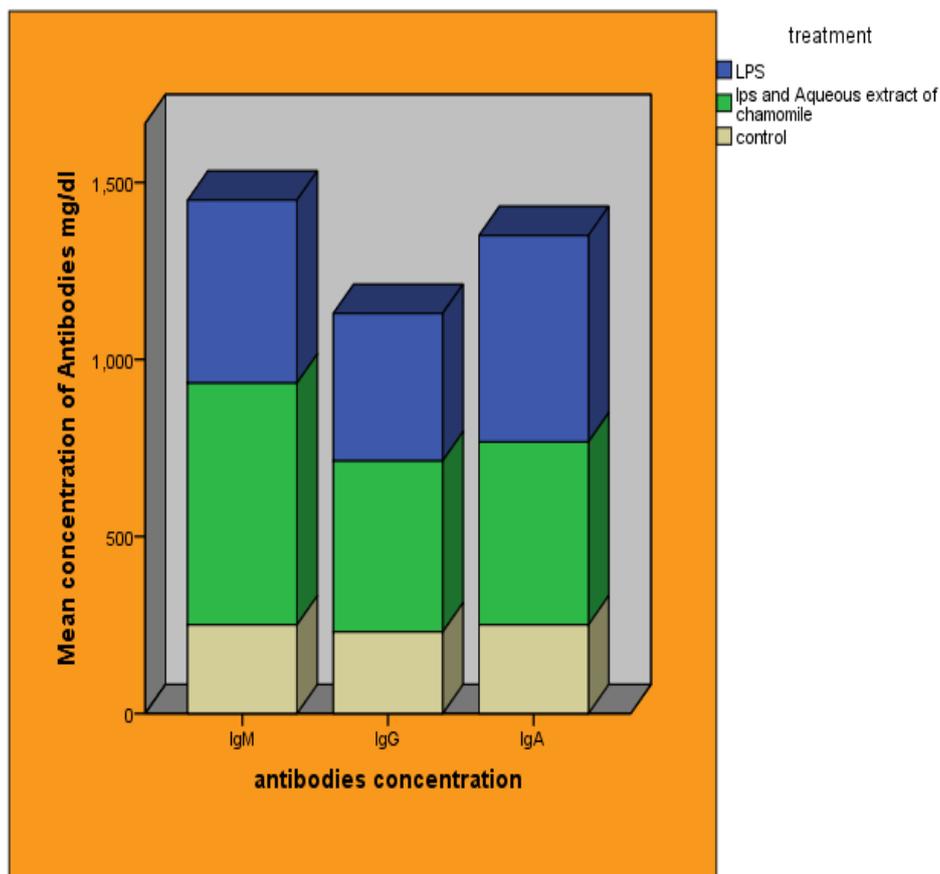


Figure 1 Effect of aqueous extract of chamomile plant and LPS isolated from Aeromonas bacteria on the concentration of antibodies in mice

Table 2 in Effect of aqueous extract of chamomile plant and LPS isolated from Aeromonas bacteria on some physiological tests mice

Descriptive Statistics

Dependent Variable: concentration of physiological test mg/dl

treatment	physiological test	Mean	Std. Deviation	N
LPS	GOT	23.00	1.000	3
	GPT	26.67	5.686	3
	alkaline phosphatase	26.67	5.508	3
	Total	25.44	4.391	9
LPS and Aqueous extract of chamomile	GOT	30.33	12.702	3
	GPT	24.00	1.000	3
	alkaline phosphatase	25.33	5.774	3
	Total	26.56	7.568	9
control	GOT	22.67	1.155	3
	GPT	23.67	2.309	3
	alkaline phosphatase	25.00	5.292	3
	Total	23.78	3.114	9

Table 2 shows the effect of the aqueous extract of chamomile plant and lipopolysaccharide isolated from bacteria on some physiological variables of the rats under study. There were no significant differences for all treatments compared to the control, where the concentration of GOT, GBT and base phosphatase reached 23, 26, 26, respectively Compared to the control, where the concentrations reached 22, 23, 25, respectively, we conclude from this that the aqueous extract and lipopolysaccharide had no negative effect on the liver, as shown in Figure 2. Chamomile fumes can be used in the treatment of chest infections and pulmonary infiltrates. Here the water is heated in a pot on the fire and a little chamomile is thrown into it, then the head is covered with the pot with a large piece of cloth and the patient begins to inhale chamomile steam for at least a quarter of an hour, so the chamomile kills these germs and treats infections. Chamomile water is also used to treat the eyes and wash them well, but caution is advised and consult a doctor before doing so, and if chamomile tea is to be prepared, it should not be boiled in the water, but rather expensive water is poured over it, then filtered and drunk. Recent tests have proven that this method is the best way to extract the largest possible amount of azulene and other beneficial substances found in chamomile.

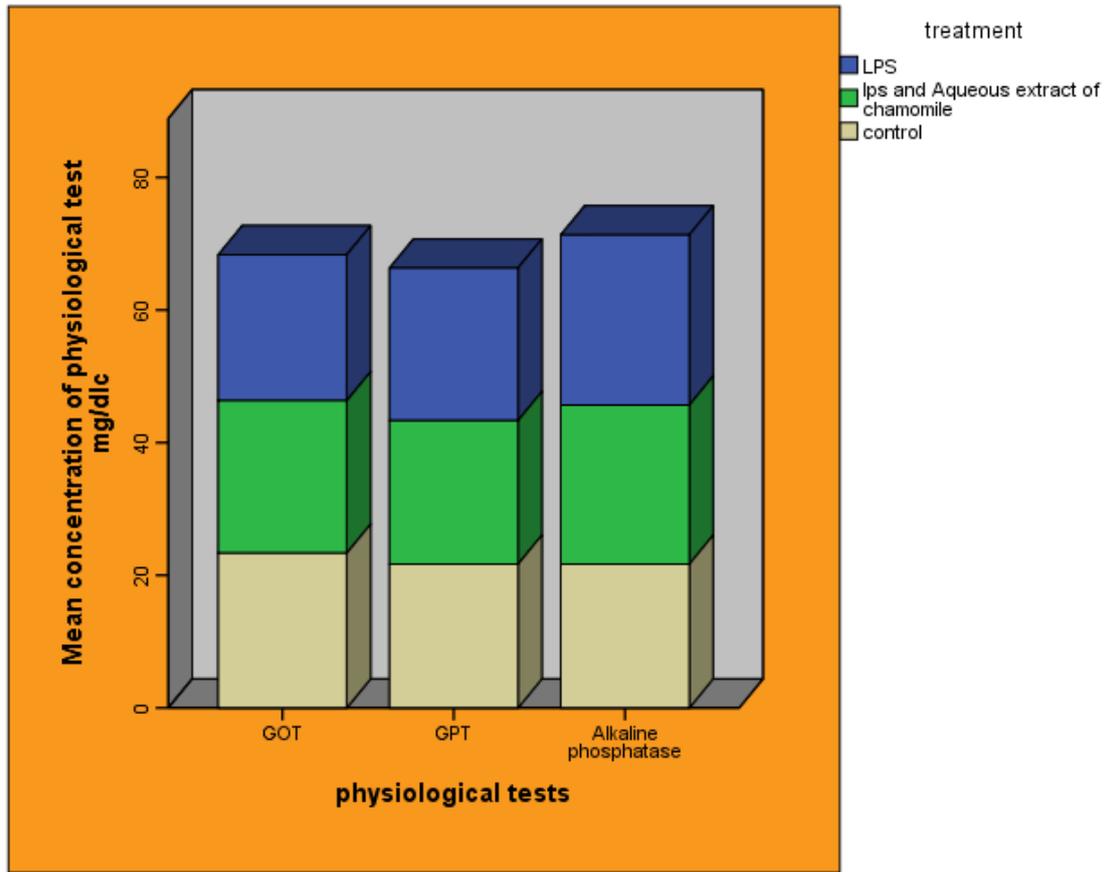


Figure 2 Effect of aqueous extract of chamomile plant and LPS isolated from *Aeromonas* bacteria on some physiological tests mice

Table 3 Effect of aqueous extract of chamomile plant and LPS isolated from *Aeromonas* bacteria on some complement protein C3 ,C4 and Interleukin 2 mice

Descriptive Statistics

Dependent Variable: concentration of complement protein and interleukin2 mg/dl				
treatment	complement protein and interleukin 2	Mean	Std. Deviation	N
LPS	C3	316.67	28.868	3
	C4	86.00	5.292	3
	Interleukin 2	916.67	28.868	3
	Total	439.78	371.921	9
LPS and Aqueous extract of chamomile	C3	563.33	55.076	3
	C4	106.67	20.817	3
	Interleukin 2	1233.33	152.753	3
	Total	634.44	497.547	9
control	C3	150.00	20.000	3
	C4	35.33	4.041	3
	Interleukin 2	466.67	57.735	3
	Total	217.33	195.887	9

Table 3 shows the effect of aqueous extract of chamomile plant and Aeromonas lipopolysaccharide on some complement proteins C3 and C4 and on interleukin, where it was noted that there were significant differences in the increase of complement proteins C3 and C4, as well as an increase in interleukin-2 in the first treatment in which polysaccharides were used only Compared with the control, where the concentrations of C3, C4 and Interleukin-2 were 316, 86 and 916, respectively, compared to the control, where their concentrations reached 150, 35, 466, respectively. As for the treatment in which the aqueous extract was used with LPS, it was the best treatment compared to the first treatment and the control. This indicates that there is a synergistic effect of the aqueous extract with LPS As shown in Figure 3. Chamomile flowers are widely used as an aid to digestion. In Europe, chamomile is distinguished for treating digestive problems, including peptic ulcers, because it acts as an anti-inflammatory, anti-colic, and antiseptic, in addition to its stomach emollient properties. Chamomile flowers are used, like tea, to fill a tablespoon of flowers soaked in Fill a cup of water that has been boiled for ten minutes, then filter and drink twice a day And chamomile flowers used as a stand for uterine bleeding. Chamomile flowers contain volatile oil, and the most important compound in it is prozolin. It also contains flavonoids, glucosides, coumarins, and tannins. Chamomile flowers are used as anti-inflammatory, anti-colic, muscle relaxant, gas repellent, anti-allergic and analgesic for colon pain.



Figure 3 Effect of aqueous extract of chamomile plant and LPS isolated from Aeromonas bacteria on some complement protein C3 ,C4 and Interleukin 2 mice

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