

LITERATURE REVIEW: THE EFFECT OF LEMONGRASS EXTRACT TO REDUCE NEUROLOGICAL DISEASES IN THE ELDERLY**Ni komang Mentary Putri Sudibia**

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Email: mentarysudibia@gmail.com**ABSTRACT**

Neurology is a field of medicine that focuses on the human brain. However, the elderly experience a natural aging process that causes changes in the brain and nervous system, increasing the risk of developing neurological diseases. One of them is dementia or alzheimer's disease, Parkinson's disease, seizures, stroke, sleep disorders, and others. The purpose of this study was to analyze the effect of lemongrass extract on reducing neurological diseases in the elderly. The research method was a systematic literature review on theses, articles, and books published in the range of 2018-2024. Data were collected from three databases (Google scholar, pubmed, and garuda portal) using the keywords "Lemongrass extract" and "Neurological diseases". The results obtained in this study indicate that lemongrass extract has an effect on reducing neurological diseases in the elderly, which can reduce dementia or alzheimer's disease, parkinson's disease, seizures, stroke, sleep disorders. So by using or consuming lemongrass drinks, lemongrass aromatherapy, lemongrass oil for foot massage, lemongrass decoction compresses, lemongrass extract drugs, lemongrass water foot soaks, lemongrass water for bathing can reduce neurological diseases in the elderly.

Keywords: Neurology, Lemongrass, Elderly**Introduction**

Neurology is a field of medicine that focuses on the human brain (Nasrullah, 2024) . Neurology plays a very important role in human life (Malikah, 2024) . However, as we age, the risk of developing neurological diseases increases (Santama, 2024) . One of them is dementia or alzheimer's disease, Parkinson's disease, seizures, stroke, sleep disorders, and others (Wenny, 2023) . Neurological diseases not only interfere with the ability to think and move, but also greatly affect the quality of life of the elderly. Therefore, it is important to find ways to prevent or at least slow down the progression of these neurological diseases.

One of the plants that can prevent and reduce neurological diseases is lemongrass (Veri et al., 2023) . Lemongrass plants are often used as cooking spices, it turns out that lemongrass has great potential to maintain the health of the human nervous system (Amalia et al., 2024) . Lemongrass contains various active compounds that have antioxidant effects, essential oils, anti-inflammatory, and others (Nurhidayati et al., 2022) . From this content is very important in protecting the brain from free radical damage, inflammation, and age factors which are the

main factors causing neurological diseases (Nilma, 2024; Nurhidayati et al., 2022) .

Although there have been many studies on the benefits of lemongrass for health in general, specific research on the effect of lemongrass on neurological diseases in the elderly is still very limited. In fact, the potential of lemongrass to help maintain the brain health of the elderly is very large. Some preliminary research shows that lemongrass extract can reduce insomnia, which is one of the neurological diseases (Fujiati et al., 2022) . Lemongrass extract can help to calm the muscles and nerves in the brain so that it is more restful when sleeping (Fujiati et al., 2022; Widiyanto et al., 2020) . This suggests that lemongrass has a very important potential to reduce neurological diseases for the elderly.

Therefore, this study aims to explore the potential of lemongrass extract in reducing the risk of neurological diseases in the elderly. By understanding how lemongrass can maintain brain performance function, and improve nervous system performance function, prevention and treatment are more effective for diseases that are often experienced by the elderly. The results of this study are expected to provide new knowledge in the field of health and improve the quality of life in old age. With more in-depth research, it is hoped that lemongrass can become one of the affordable and accessible natural solutions to help the elderly stay healthy and active mentally and physically.

Research Methods

The research method used in this research is systematic review. the source of data for research data is in the form of theses, articles, and books that have been published in several databases, namely google scholar, garuda portal, and PubMed. Literature search review from 2018-2024. The literature search strategy uses the keywords "lemongrass extract" and "neurological diseases" based on the PICOT criteria obtained 10 theses, 30 articles, and 20 books. Criteria for selecting theses, articles, and books based on research data that has been published, full text, ISSN indexed, and does not have a comparative intervention. Of the 10 theses, 30 articles, and 20 books, researchers took 2 theses, 17 articles, and 1 book for review.

Results and Discussion

Neurological diseases that are often experienced by the elderly are dementia or alzheimer's disease, Parkinson's disease, seizures, stroke, sleep disorders, and others. The following are the results of the literature review presented in table 1, as follows:

Table 1. Results of Literature Review

No.	Journal	Year	Category	Function
1	The effect of lemongrass, jasmine and ginger aromatherapy on insomnia in the elderly at posbindu Gunungjaya Village, Belik District, Pemalang Regency	2024	Lemongrass aromatherapy	Lemongrass aromatherapy effectively reduces insomnia in the elderly.
2	Effect of lemongrass aromatherapy on sleep quality in elderly with hypertensiona	2024	Lemongrass aromatherapy	Lemongrass aromatherapy is effective in improving sleep quality in the elderly.

No.	Journal	Year	Category	Function
3	Effects of coffee and lemongrass candle aromatherapy: a literature review	2024	Lemongrass aromatherapy	Lemongrass aromatherapy is calming and helps to relax and fall asleep easily.
4	The effectiveness of foot <i>massage</i> and lemongrass aromatherapy on reducing insomnia in the elderly at the Sukawangi Village pustu, Garut Regency in 2024	2024	Lemongrass oil	Lemongrass foot <i>massage</i> is faster in reducing insomnia in the elderly.
5	Comparison of the effectiveness of lemongrass warm compress and gamelan music on <i>rheumatoid arthritis</i> pain intensity in the elderly	2024	Lemongrass decoction compress	Lemongrass oil in lemongrass decoction compress reduces spastic disease in the elderly.
6	The effect of giving a warm compress of lemongrass water decoction on the intensity of <i>rheumatoid arthritis</i> pain in the elderly	2024	Lemongrass Decoction Compress	Lemongrass oil reduces spastic disease in the elderly.
7	Application of Lemongrass Aromatherapy to Anxiety Facing Childbirth at the Tanjung Balai Karimun Health Center	2024	Lemongrass aromatherapy	Lemongrass aromatherapy can stimulate the mind and help treat seizures, alzheimer's, and parkinson's .
8	Interaction of bioactive compounds in lemongrass (<i>Cymbopogon citratus</i>) against AChE and BACE 1 receptors: An in silico study to find a cure for alzheimer's disease	2023	Medicine	Medicine from lemongrass (<i>Cymbopogon citratus</i>) has the potential to be a cure for alzheimer's disease .
9	The effectiveness of lemongrass aromatherapy foot <i>massage</i> on reducing insomnia in the elderly at the elderly posyandu Bojong Indah Ciseeng village Bogor	2023	Aromatherapy and foot <i>massage</i>	Aromatherapy and lemongrass foot <i>massage</i> can reduce insomnia in the elderly.
10	Education on the application of warm water foot soak intervention with lemongrass to improve the sleep quality of elderly people with hypertension in Bumi Harjo Village	2023	Lemongrass water foot soak	Foot soak with warm lemongrass water can improve sleep quality in the elderly .
11	Utilization of herbal plants as immunomodulators in order to increase immunity for the elderly at the Banjarbaru Tresna Werdha Social Home	2022	Lemongrass water drink	Lemongrass drink reduces insomnia in the elderly.

Literature Review: The Effect of Lemongrass Extract to Reduce Neurological Diseases in The Elderly

No.	Journal	Year	Category	Function
12	Counseling on the benefits of lemongrass stems (<i>Cymbopogon Citratus</i>) for insomnia patients at sembiring hospital	2021	Lemongrass aromatherapy	Lemongrass aromatherapy reduces insomnia.
13	Reducing anxiety in high-risk pregnant women through <i>citronella oil therapy</i>	2021	Citronella water drink	Lemongrass can prevent alzheimer's and Parkinson's disease.
14	Effectiveness of tongue-in-law and lemongrass plant extracts in reducing indoor Co levels	2021	Lemongrass water drink	Lemongrass can treat stroke.
15	Lemongrass aromatherapy affects the sleep quality of the elderly	2021	Lemongrass aromatherapy	Lemongrass can prevent insomnia in the elderly.
16	Anti-dementia activity test of methanol extract of kitchen lemongrass leaves (<i>Cymbopogon Citratus</i>) in vascular dementia model mice using the Novel Object Recognition (NOR) method.	2020	Lemongrass extract	Methanol extract of lemongrass leaves (<i>Cymbopogon citratus</i>) is able to prevent memory loss.
17	The effectiveness of warm water foot soak with lemongrass on the sleep quality of elderly people with hypertension in Banyu Urip village, Klego, Boyolali	2020	Lemongrass water foot soak	Foot soak with warm lemongrass water is effective in reducing sleep disturbances in the elderly.
18	Utilization of citronella essential oil: cultivation, distillation and technological development	2019	Lemongrass oil	Lemongrass oil can reduce insomnia.
19	<i>Co Fire (Coco Fiber Pillow With Relaxing Aromatic System):</i> innovation in processing coconut <i>fiber</i> waste into batik ciprat motif pillow creations with aromatherapy preparations based on socio entrepreneurship.	2018	Lemongrass water for bathing	Lemongrass water for bathing can prevent alzheimer's and parkinson's diseases.
20	The effect of lemongrass oil aromatherapy (<i>Cymbopogon citratus</i>) on the prevention of postpartum blues in primiparous mothers at Sukoharjo Regency Hospital.	2018	Lemongrass aromatherapy	Lemongrass aroma therapy can prevent Alzheimer's and Parkinson's disease.

Source: Data processed

Reference source of table data: (Aji, 2024; Andriani et al., 2018; Andriati et al., 2024; Apriza et al., 2021; Arsi, 2024; Faidah, 2021; Fatmawati, 2023; Fujiati et al., 2022; Ghani, 2020; Harahap, 2021; Nasution, A., 2019; Nilma, 2024; Nurjamilah et al., 2024; Safinatunnajah et

al., 2024; Sanda, 2023; Septiana Sari et al., 2018; Veri et al., 2023; Warsyena & Wibisono, 2021; Wicaksono & Sulistiono, 2021; Vani, 2021; Widiyanto et al., 2020)

Based on table 1 above, the results of the literature review show that lemongrass extract can reduce neurological diseases in the elderly which focus on dementia or alzheimer's disease, Parkinson's disease, seizures, stroke, sleep disorders. Lemongrass aromatherapy is effective in reducing insomnia, because lemongrass aroma can provide a relaxing effect that makes it easier to fall asleep. (Aji, 2024; Faidah, 2021; Harahap, 2021; Safinatunnajah et al., 2024; Vani, 2021; Veri et al., 2023) . Lemongrass aromatherapy can also stimulate the mind and help treat seizures, alzheimer's, and parkinson's (Nilma, 2024; Septiana Sari et al., 2018) . The aroma of lemongrass stimulates the limbic system in the brain, which plays a role in increasing alertness and concentration. In addition, lemongrass has anticonvulsant properties that can potentially reduce the frequency and intensity of seizures, alzheimer's, and parkinson's (Nilma, 2024; Septiana Sari et al., 2018) .

Foot soak with warm lemongrass water can improve sleep quality in the elderly, because the combination of the relaxing effect of warm water and the calming properties of lemongrass has a calming effect on the nervous system, helping to reduce stress and anxiety which is often the cause of sleep disturbances in the elderly (Fatmawati, 2023) . In addition to aromatherapy and foot soak with lemongrass water, lemongrass foot *massage* can also reduce insomnia, even faster to reduce insomnia because the lemongrass content in massage oil provides a more calming aromatherapy effect, helping to relieve stress and anxiety which is often the cause of insomnia (Nurjamilah et al., 2024; Veri et al., 2023; Widiyanto et al., 2020) .

Lemongrass oil in lemongrass decoction compresses can help relieve spasms, because the essential oil content in lemongrass helps relax tense muscles (Andriati et al., 2024; Arsi, 2024) . In addition to relieving spasms, lemongrass oil can reduce insomnia because it contains essential oils that can calm nerves and muscles so that sleep quality improves (Nasution, 2019) .

Lemongrass drink reduces insomnia because it helps calm the muscles and nerves so that it is more restful when sleeping (Fujiati et al., 2022) . In addition, lemongrass drinks can prevent alzheimer's and Parkinson's disease, because lemongrass drinks have the potential to prevent alzheimer's and Parkinson's due to their antioxidant and anti-inflammatory content. Antioxidants in lemongrass protect brain cells from free radical damage, while its anti-inflammatory properties can reduce inflammation in the brain (Apriza et al., 2021) . And lemongrass drinks can also treat stroke, because lemongrass can be an anticonvulsant, inhibit platelet aggregation, decrease blood pressure, and anticonvulsant so that it can treat stroke (Wicaksono & Sulistiono, 2021) . Medicines from lemongrass (*Cymbopogon citratus*) contain compounds that have the potential to become a cure for alzheimer's disease, namely methanol extract of lemongrass leaves *Cymbopogon citratus*) can prevent memory loss (Ghani, 2020; Safinatunnajah et al., 2024) .

Lemongrass water for bathing can prevent alzheimer's and parkinson's diseases. Lemongrass water is used in therapeutic baths that can reduce symptoms of depression, calm nerves, and reduce the effects of fatigue caused by stress. So lemongrass water for bathing can prevent alzheimer's and parkinson's disease (Andriani et al., 2018) .

Conclusion

From the research obtained results based on the literature search strategy using the keywords "lemongrass extract" and "neurological diseases" get the results that lemongrass extract has an effect on reducing neurological diseases in the elderly, which can reduce dementia or alzheimer's disease, parkinson's, seizures, stroke, sleep disorders. So by using or consuming lemongrass drinks, lemongrass aromatherapy, lemongrass oil for foot massage, lemongrass decoction compresses, lemongrass medicine, lemongrass water foot soaks, lemongrass water for bathing can reduce neurological diseases in the elderly.

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