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An Overview of *Syzygium Polyanthum* (Bay leaf) Extract as Dyslipidemia Treatment

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A B S T R A C T

Dyslipidemia is one of the main risk factors for cardiovascular diseases, such as heart attack and stroke. This condition can be caused by genetic factors, unhealthy lifestyles (such as unhealthy food, lack of exercise, smoking, and excessive alcohol consumption), as well as some medical conditions, such as diabetes and hypothyroidism *Syzygium polyanthum* or also called Indonesian bay leaf is a tropical plant that usually grows in Southeast Asia. This literature review aimed to describe the benefits of bay leaves as adjuvant therapy in dyslipidemia. Apart from being used as a spice in cooking, *Syzygium polyanthum* is also known to have several health benefits. These leaves contain compounds such as eugenol, tannins, and flavonoids, which have antioxidant and anti-inflammatory effects. Several studies show that bay leaves can help lower blood sugar levels, improve heart health, and strengthen the immune system. In conclusion, bay leaf or *Syzygium polyanthum* has various kinds of compounds, such as flavonoids, eugenol, and tannins which are useful in lowering blood cholesterol. Its use as a therapy for dyslipidemia requires further study.

1. Introduction

Dyslipidemia is a condition in which the level of fat in a person's blood is abnormal, mainly related to cholesterol and triglycerides. This condition occurs when levels of LDL cholesterol (low-density lipoprotein or known as bad cholesterol) are high, while levels of HDL cholesterol (high-density lipoprotein or good cholesterol) are low. High triglycerides are also often part of dyslipidemia.[1,2]

Dyslipidemia is one of the main risk factors for cardiovascular diseases, such as heart attack and stroke. This condition can be caused by genetic factors, unhealthy lifestyles (such as unhealthy food, lack of exercise, smoking, and excessive alcohol consumption), as well as some medical conditions, such as diabetes and hypothyroidism. Treatment of dyslipidemia can involve lifestyle changes, such as maintaining a healthy diet, increasing physical activity, and quitting smoking. Sometimes, drugs such as statins are also prescribed to lower LDL cholesterol levels.[3,4]

Traditional therapy is still considered therapy in some countries, especially Indonesia. One of the herbal medicines that is often used is bay leaf (*Syzygium polyanthum).* Several studies have found that bay leaves contain efficacious components in lowering LDL levels in the blood.[5,6] This literature review aimed to describe the benefits of bay leaves as adjuvant therapy in dyslipidemia.

Syzygium polyanthum

Syzygium polyanthum, also known as a bay leaf or Indonesian bay leaf, is a tropical plant that usually grows in Southeast Asia.[1,6] This plant usually grows as a small tree or shrub and has broad, glossy green leaves. This plant is commonly used as a spice and seasoning in Indonesian, Malaysian, and Thai cuisine. Apart from being used as a spice in cooking, *Syzygium polyanthum* is also known to have several health benefits.[7] These leaves contain compounds such as eugenol, tannins, and flavonoids, which have antioxidant and anti-inflammatory effects. Several studies show that bay leaves can help lower blood sugar levels, improve heart health, and strengthen the immune system.[8,9]

Flavonoid content in *Syzigium polyanthum*

Syzygium polyanthum contains various types of flavonoids, which are phytochemical compounds that have strong antioxidant and anti-inflammatory activities. Several types of flavonoids found in bay leaves include quercetin, kaempferol, myricetin, and luteolin. The flavonoids in bay leaves have strong antioxidant and anti-inflammatory effects and can help improve heart health. Flavonoid content in *Syzygium polyanthum* may provide many health benefits, including protecting cells from free radical damage, improving heart health, and reducing the risk of degenerative diseases such as cancer and Alzheimer's disease.[1,3]

Flavonoids are phytochemical compounds found in various types of plants and have various health benefits, one of which is the ability to reduce levels of low-density lipoprotein (LDL) or bad cholesterol in the blood. The mechanism of flavonoids in lowering LDL is not fully understood, but several studies have shown several possible mechanisms that may be involved, including; inhibition of cholesterol absorption, increase of cholesterol expenditure, inhibition of LDL oxidation, and reduction of cholesterol production. [10]

Several types of flavonoids, such as quercetin and kaempferol, are known to inhibit cholesterol absorption in the small intestine, thereby reducing the amount of cholesterol absorbed by the body. Quercetin and epicatechin are also able to inhibit LDL oxidation, thereby protecting blood vessel walls from damage and reducing the risk of atherosclerosis. Oxidized LDL can damage blood vessel walls and increase the risk of atherosclerosis or heart disease.[8,10]

The role of tannin and eugenol compounds in bay leaves

Tannins are polyphenolic compounds found in various types of plants, such as tea leaves, grapes, fruits, and herbs, such as bay leaves. Eugenol is an aromatic compound found in clove oil and several other plant species. Tannins and eugenol have various health benefits, one of which is the ability to lower blood cholesterol levels. The mechanism of the role of tannins and eugenol in lowering blood cholesterol is not fully understood, but several studies have indicated several possible mechanisms that may be involved, including inhibition of cholesterol absorption in the small intestine, increased excretion of cholesterol through feces and reduction of cholesterol production in the liver, so that the amount of bad cholesterol in the blood decreased. In addition, tannins and eugenol are also known to have antioxidant and anti-inflammatory effects, which can protect blood vessel walls from damage caused by free radicals and inflammation.[9]

2. Conclusion

Bay leaf or *Syzygium polyanthum* has various kinds of compounds, such as flavonoids, eugenol, and tannins which are useful in lowering blood cholesterol.

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