

Research Article

Identification of Bioactive Compounds from Cocoa Fruit Skin (*Theobroma Cacao* L.) with Variations in Solvent Polarity Properties

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Abstract: Bioactive compounds are chemical compounds formed through metabolic processes in plants, contributing to their beneficial properties. Cocoa fruit, derived from 22 cultivated *Theobroma* species, contains a variety of bioactive compounds that offer several health benefits. Identifying these bioactive compounds in plants can be achieved through extraction using various solvents, depending on their polarity properties. This study aims to explore the content of bioactive compounds in dried cocoa fruit peel (*Theobroma cacao* L.) extract, focusing on variations in solvent polarity. The results of the study showed that the 90% ethanol extract (polar solvent) of cocoa fruit peel contained a range of bioactive compounds, including flavonoids, tannins, alkaloids, and saponins. Ethanol, being a polar solvent, effectively extracted a variety of bioactive compounds due to its ability to dissolve polar substances. This extract is significant due to its wide range of potential health benefits attributed to the presence of flavonoids, tannins, alkaloids, and saponins, all known for their antioxidant, antimicrobial, and anti-inflammatory properties. Additionally, the acetone extract (semi-polar solvent) of cocoa fruit peel also contained alkaloids, flavonoids, tannins, and saponins. Acetone, as a semi-polar solvent, was able to extract a variety of compounds with moderate polarity, making it a versatile solvent for bioactive compound extraction. The presence of alkaloids and saponins in this extract indicates its potential use for various medicinal purposes. On the other hand, the n-Hexane extract (non-polar solvent) of cocoa fruit peel produced primarily alkaloids and terpenoids. Hexane, being non-polar, tends to extract non-polar compounds, which include alkaloids and terpenoids known for their various biological activities. In conclusion, the study demonstrates the varying effectiveness of solvents with different polarities in extracting bioactive compounds from cocoa fruit peel, which can be utilized for health-promoting purposes.

Keywords: Bioactive, Cocoa Fruit Peel, Extraction, Polarity, Solvent.

1. Introduction

Compound bioactive is results from the metabolic processes in plants that produce something compound will but its function No so important in growth and development in plants the (Julianto, 2019) . Compounds bioactive often called compound metabolit secondary . Function from metabolit secondary For prevent growth bacteria , fungi and animals eater plants on a plant as well as maintaining and developing ability reproductive organs owned by plants That himself (Justinus et al ., 2018). Plants are known as the main producers of secondary metabolite compounds that have different high bioactive potentials that are used in the drug and pharmaceutical industry (Jain et al., 2019) .

Plants that contain bioactive compounds include the cocoa plant, where the most widely used part is the fruit. Included in the 22 cultivated *Theobroma* species, this plant is known to have various benefits and advantages (Rosio, 2018). Cocoa fruit (*Theobroma cacao* L.) is usually processed into chocolate, but the cocoa fruit skin is only thrown away as waste in large quantities and is not utilized, therefore cocoa fruit skin waste becomes a problem if it is produced in large quantities and not handled properly (Rachmawaty, 2018).

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Bioactive Compounds In Different Cocoa Theobroma Cacao

**Rodolfo Paoletti, Andrea Poli, Ario
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Bioactive Compounds In Different Cocoa Theobroma Cacao:

The Top Books of the Year Bioactive Compounds In Different Cocoa Theobroma Cacao The year 2023 has witnessed a noteworthy surge in literary brilliance, with numerous captivating novels captivating the hearts of readers worldwide. Lets delve into the realm of bestselling books, exploring the captivating narratives that have captivated audiences this year.

Bioactive Compounds In Different Cocoa Theobroma Cacao : Colleen Hoover's "It Ends with Us" This touching tale of love, loss, and resilience has captivated readers with its raw and emotional exploration of domestic abuse. Hoover skillfully weaves a story of hope and healing, reminding us that even in the darkest of times, the human spirit can prevail.

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Bioactive Compounds In Different Cocoa Theobroma Cacao : Delia Owens "Where the Crawdads Sing" This captivating coming-of-age story follows Kya Clark, a young woman who grows up alone in the marshes of North Carolina. Owens crafts a tale of resilience, survival, and the transformative power of nature, captivating readers with its evocative prose and mesmerizing setting.

These popular novels represent just a fraction of the literary treasures that have emerged in 2023. Whether you seek tales of romance, adventure, or personal growth, the world of literature offers an abundance of captivating stories waiting to be discovered.

The novel begins with Richard Papen, a bright but troubled young man, arriving at Hampden College. Richard is immediately drawn to the group of students who call themselves the Classics Club. The club is led by Henry Winter, a brilliant and charismatic young man. Henry is obsessed with Greek mythology and philosophy, and he quickly draws Richard into his world. The other members of the Classics Club are equally as fascinating. Bunny Corcoran is a wealthy and spoiled young man who is always looking for a good time. Charles Tavis is a quiet and reserved young man who is deeply in love with Henry. Camilla Macaulay is a beautiful and intelligent young woman who is drawn to the power and danger of the Classics Club. The students are all deeply in love with Morrow, and they are willing to do anything to please him. Morrow is a complex and mysterious figure, and he seems to be manipulating the students for his own purposes. As the students become more involved with Morrow, they begin to commit increasingly dangerous acts.

The Secret History is an exceptional and gripping novel that will keep you guessing until the very end. The novel is a cautionary tale about the dangers of obsession and the power of evil.

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