

Discovering Arachidic Acid's Possible Industrial Uses

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Introduction

"Eicosanoic acid," also known as Arachidic acid is a straight-chain fatty acid with 20 carbon atoms. It is a minor constituent of cupuaçu butter (7%), perilla oil (0–1%), peanut oil (1.1–1.7%), corn oil (3%), and cocoa butter (1%) (Cohen, K. de O. & Jackix, M. de N. H. (2009); Shin, Hyo-Sun (1997); Beare-Rogers et al. 2001). Arachidic acid is a non-essential fatty acid for humans, meaning the body can synthesize it. It is not typically considered as crucial as some essential fatty acids.

Industrial application

Arachidic acid (eicosanoic acid) does have some industrial uses, mainly due to its properties as a long-chain saturated fatty acid. Here are some industrial applications (Arachidic acid | Ataman Kimya A.Ş. (ataman-chemicals.com)):

1. Lubricants and Greases

Arachidic acid can be used in the production of lubricants and greases due to its long carbon chain, which imparts good lubricating properties.

2. Surfactants

Fatty acids, including arachidic acid, are used in the production of surfactants. Surfactants are compounds that lower the surface tension of liquids and are widely used in detergents, emulsifiers, and other cleaning products.

3. Cosmetics and Personal Care Products

Arachidic acid may be used in the formulation of cosmetics and personal care products, including creams, lotions, and soaps, due to its emollient properties.

4. Textile Industry

Fatty acids are sometimes used in the textile industry as softeners and finishing agents for fabrics.

5. Candle Manufacturing

Long-chain fatty acids, such as arachidic acid, can be used in the production of candles as they contribute to the structure and consistency of the wax.

6. Food Industry

While not as common as some other fatty acids, arachidic acid may find application in the food industry, possibly in the production of certain food additives or emulsifiers.

7. Pharmaceuticals

Fatty acids, including arachidic acid, might have pharmaceutical applications, such as in the formulation of drug delivery systems.

8. Photographic materials: Arachidic acid is used in the production of photographic materials such as film and paper.

It's important to note that the industrial uses of specific fatty acids can vary, and the applications mentioned here might involve blends of fatty acids or derivatives rather than the pure arachidic acid. Additionally, the demand for specific fatty acids in various industries can change over time as new research and technologies develop.

Selected References

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57021718. Perilla seed contains about 38-45% of lipid (Sonntag, 1979; Vaughan, 1970). Beare-Rogers, J.; Dieffenbacher, A.; Holm, J.V. (2001). "Lexicon of lipid nutrition (IUPAC Technical Report)". Pure and Applied	Chemistry. 73 (4): 685–744. doi:10.1351/pac200173040685. S2CID 84492006. ARACHIDIC ACID Ataman Kimya A.Ş. (ataman-chemicals.com)
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