Company: SynthoChem

CEO: Saumya Gupta

Report Authors: 1. Varsha J T

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Chemical Formula: $C_7H_6O_3$

Chemical Name: Salicylic Acid

Use case

a. **What is the use of this compound?**

It is used as an active ingredient in many skincare products in the market, largely used for acne concerns, and also used as the starting material in the production of aspirin-is used to reduce fever and to relieve mild to moderate pain from headaches, menstrual periods , arthritis, toothaches and muscle aches.

Salicylic acid topical is used to treat many skin disorders, such as acne, dandruff, psoriasis, and seborrheic dermatitis of the skin.

b. **Are there any alternatives to this compound? Name a few .**

As far as skincare is concerned, there are:

- Glycolic acid
- Lactic acid
- Benzoyl peroxide as alternatives to salicylic acid

c. **Why this compound is superior to its alternatives?**

Looking through the skincare products of salicylic acid in the market, we find a large portion target audience with acne-related concerns.

Unlike glycolic acid, salicylic acid decreases sebum in the skin. This is important because sebum can clog pores, which increases your risk of an acne breakout. Excess sebum also promotes the growth of bacteria that can cause acne.

Salicylic acid's exfoliating, anti-inflammatory, and antimicrobial effects are also beneficial for acne-prone skin

d. **Is this compound imported in India? What is the magnitude of imports?**

Yes, it is being imported to India. A total quantity of 9,631,483 was being imported to India in the year 2016 till November ,according to the article linked below.

https://www.zauba.com/importanalysis-salicylic+acid-report.html

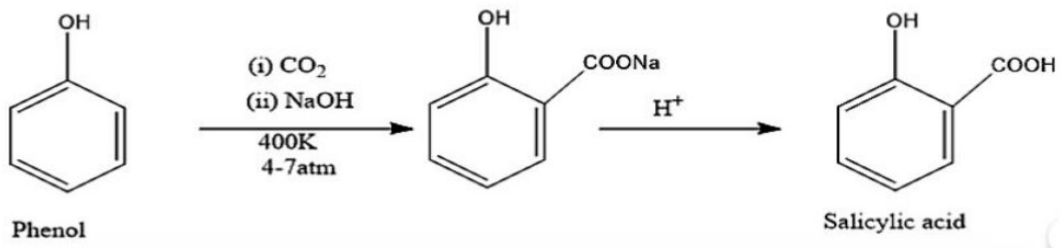
Economic feasibility:

a. What input raw materials are needed for its synthesis (same as reported in the Patent application)?

Sno.	Raw material	Cost (Rs)	Molecular mass
1.	Phenol	110/Kg	94.11 Kg/kmol
2.	Sodium hydroxide	639/Kg	40 Kg/kmol
3.	Carbon dioxide	30/Kg	44 Kg/kmol
4.	Hydrochloric acid	50/kg	36.458 Kg/kmol
5.	Ethanol	63.45/litre	46.07 Kg/kmol
6.	Water	16/kg	18.015 Kg/kmol

b. Provide preliminary economic feasibility based on cost of raw materials, solvents and product selling price.

Cost of salicylic acid	430 Rs/Kg.
Molecular mass of salicylic acid	122.12 Kg/kmol



Economic feasibility:

For production of 1 kmol salicylic acid.

Product price - (all the raw material price)

The reaction yield is 80% . so,

(430 x 122.12) x 0.80 – {(110 x 94.11) + (639 x 40) + (30 x 44) + (50 x 36.458)} =

42009.28 – 39,055 = 2954.28 Rs/kmol.

So, profit we get is :

2954.28 Rs/kmol / 122 Kg/kmol = 24.22 **Rs/Kg**

References:

Uses-https://www.mayoclinic.org/drugs-supplements/salicylic-acid-topical-route/description/drg-20066030

Alternatives- https://www.healthline.com/health/beauty-skin-care/glycolic-acid-vs-salicylic-acid

Import data- https://www.zauba.com/importanalysis-salicylic+acid-report.html

List the contributions of each author:

- **Varsha J T - has done the research for the chemical salicylic acid and prepared the use case for the same.**
- **Ajay Chouhan – has check economic feasibility of the reaction based on cost of raw materials and solvent and selling price of product.**

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