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EXTRACTION OF (SALICYLIC ACID) FROM A WHITE WILLOW

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Abstract: Salicylic acid is extracted from white willow through a process called willow separating, also known as sedimentation or acid filtration. This process includes the use of such as sulfuric acid or hydrochloric acid. In this process, a sample of willow was collected from the white willow. The willow is prepared so that the largest volume is displaced. Is a vital nutrient utilized by marine organisms like phytoplankton, zooplankton, and sponges to form biogenic opa.Topical salicylic acid treats acne by reducing swelling and redness and unplugging blocked skin pores to allow pimples to shrink. It treats other skin conditions by softening and loosening dry, scaly, or thickened skin so that it falls off or can be removed easily.

1.1. Introduction

Salicylic acid is an organic compound with the formula HOC6H4COOH.[3] A colorless (or, white), bitter-tasting solid, it is a precursor to and a metabolite of acetylsalicylic acid (aspirin).[3] It is a plant hormone,[8] and has been listed by the EPA Toxic Substances Control Act (TSCA) Chemical Substance Inventory as an experimental teratogen.[9] The name is from Latin salix for willow tree, from which it was initially identified and derived. It is an ingredient in some anti-acne products. Salts and esters of salicylic acid are known as salicylates.Salicylic acid modulates COX-1 enzymatic activity to decrease the formation of pro-inflammatory prostaglandins. Salicylate may competitively inhibit prostaglandin formation. Salicylate's antirheumatic (nonsteroidal anti-inflammatory) actions are a result of its analgesic and anti-inflammatory mechanisms.[citation needed]

Salicylic acid, when applied to the skin surface, works by causing the cells of the epidermis to slough off more readily, preventing pores from clogging up, and allowing room for new cell growth. Salicylic acid inhibits the oxidation of uridine-5-diphosphoglucose (UDPG) competitively with NADH and noncompetitively with UDPG. It also competitively inhibits the transferring of glucuronyl group of uridine-5-phosphoglucuronic acid to the phenolic acceptor.[23]

If high concentrations of salicylic ointment are used topically, high levels of salicylic acid can enter the blood, requiring hemodialysis to avoid further complications.[24]

Cosmetic applications of the drug pose no significant risk.[25] Even in a worst-case use scenario in which one was using multiple salicylic acid-containing topical products, the aggregate plasma concentration of salicylic acid was well below what was permissible for acetylsalicylic acid (aspirin).[25] Since oral aspirin (which produces much higher salicylic acid plasma concentrations than dermal salicylic acid applications) poses no significant adverse pregnancy outcomes in terms of frequency of stillbirth, birth defects or developmental delay, use of salicylic acid containing cosmetics is safe for pregnant women.[25] Salicylic acid is present in most fruits and vegetables as for example in greatest quantities in berries and in beverages like tea.

1.2. Wexperimental part

A.Tools

1. Funnel
2. Beaker
3. Balance
4. Oven
5. Evaporating basin
6. Flask (conical)
7. Measuring cylinder
8. Dropper
9. Heater(hot plate)
10. Watch glass
11. Wash bottle
12. Thermometer
13. Safety spectacles
14. Safety visor
15. Spatula
16. Volumetric flask

B. Material

1. white willow
2. HCI
3. D.W
4. NaOH

1.3 How it works

A process for preparing salicylic acid by solvent method includes such steps as adding the sodium phenolate containing water to octanol as organic solvent, vacuum dewatering to obtain transparent liquid, introducing carbon dioxide, gas-liquid phase carboxylating reaction to obtain sodium salicylate, and acidifying.

2. The process according to claim 1, wherein the weight ratio of the organic solvent to phenol is 4-10: 1.

3. The process as claimed in claim 1, wherein the molar ratio of phenol to sodium hydroxide is 1: 1.0-1.05, and the concentration of the aqueous sodium hydroxide solution is 30-50%.

4. The process according to claim 1 or 2, characterized in that after the organic solvent is added, the process is carried out under vacuum at a vacuum degree of 0-0.1Mpa and a temperature of 40-140 ℃, and the dehydration is terminated when the water content in the phenol sodium salt is less than 0.3%.

5. The process as claimed in claim 4, wherein the carboxylation reaction of dehydrated sodium phenolate with excessive carbon dioxide is carried out at a reaction pressure of 0-0.8Mpa and a temperature of 100-190 ℃ to produce sodium salicylate, and then the introduction of carbon dioxide is stopped.

6. The process as claimed in claim 1 or 5, wherein the carboxylation reaction is carried out by cooling, adding water, standing under nitrogen protection, and acidifying theseparated water phase to obtain salicylic acid.

7. The process according to claim 6, wherein the organic solvent containing phenol separated by standing after the carboxylation reaction is

Results and discussion

SEM

SEM used to determine the morphology and detailed structures of many nanomaterials.

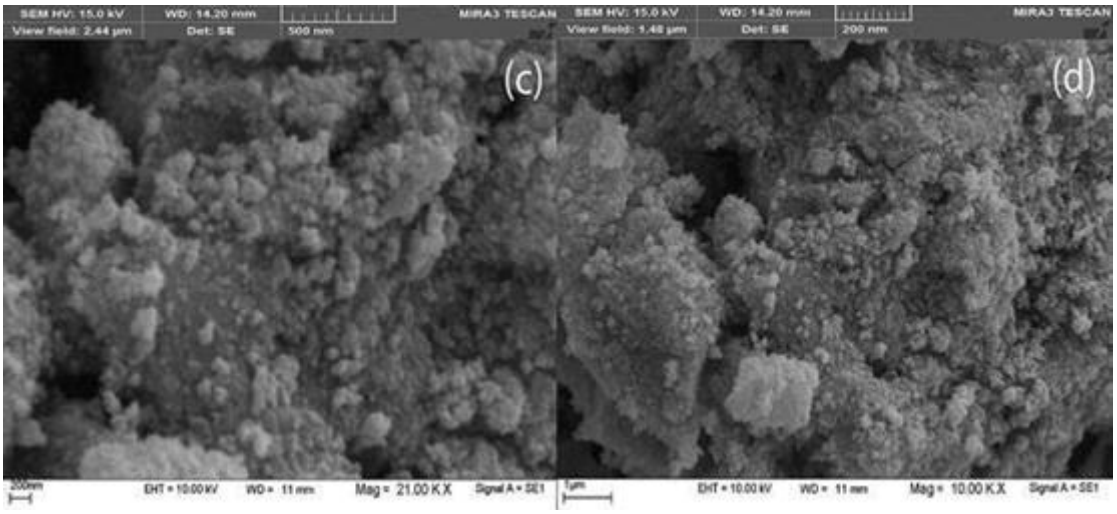


Figure 1: The SEM micrographs of the silica sample

Figure (1) and shows the SEM micrographs of the sSalicylic acid extracted The micrograph is observed to have agglomeration of Salicylic acid with irregular particle shapes, which varies in sizes and are widely distributed

Microstructure characterisatio:

The result is shown in Figure (1) The particle size of nano-Salicylic acid from 35.83nm to 62.15nm, the particle size distribution is uniform, nano Salicylic acid was observed in a granular structure similar to flower seed and particle size was calculated in the range of 30.83nm to50.15nm excellent

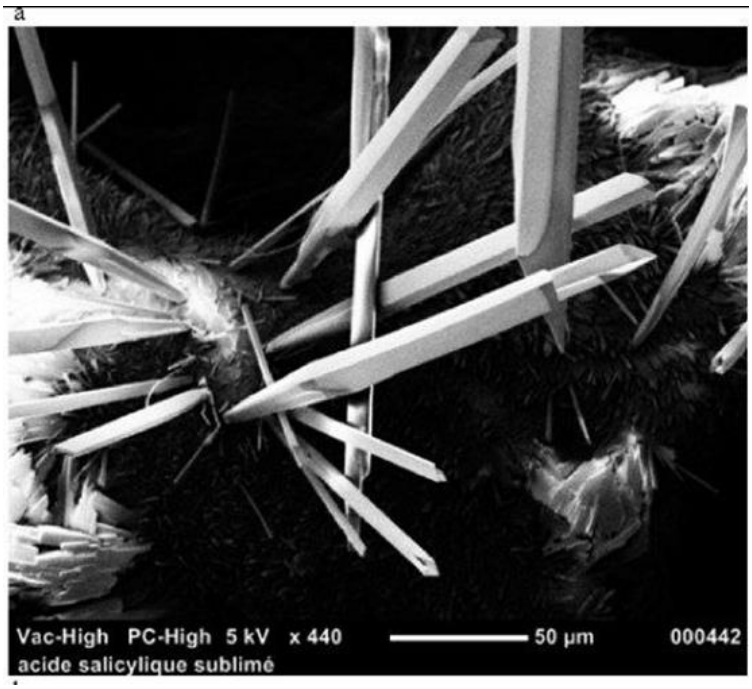


Figure 2: The SEM micrographs of the Salicylic acid sample.

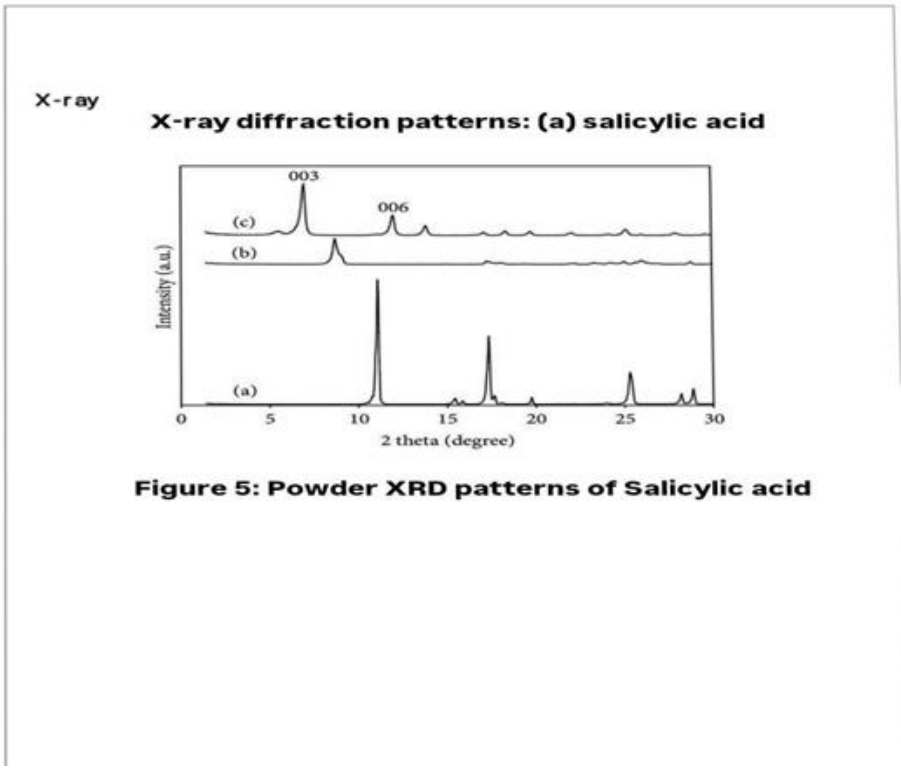
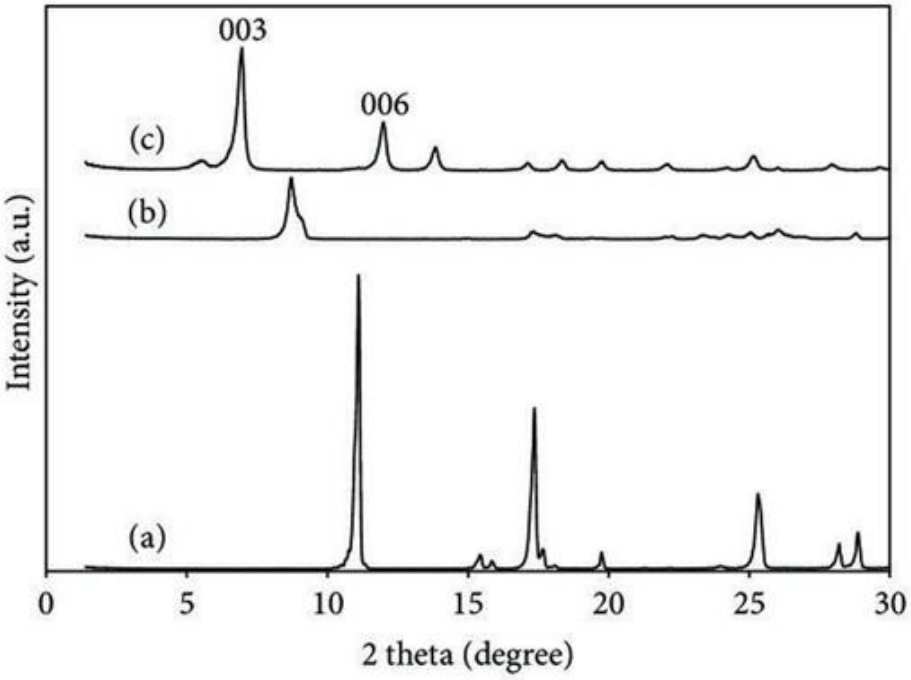


Figure 5: Powder XRD patterns of Salicylic acid

There is adhesion between a small number of particles as shown in Figure (2). This may be due to the synthesis process of structure ofSalicylic acid or remains of elements, the Salicylic acid microsgranular adhere to each other by adsorption. The surface morphology of silica nanoparticles was explored by Scanning Electron Microscopy (SEM) analysis. From the SEM images, as shown in Figure (2), it is clearly illustrated that almost monodisperse, structure similar to flower seed, and uniform size of salicylic nanoparticles have been successfully prepared from sand the extraction

X-ray diffraction patterns: (a) salicylic acid



Conclusion

Salicylic acid

Was extracted from sand selected from white willow The Salicylic acid extraction process was carried out successfully and proved that there was a good percentage of salicylic . , some characterizations such as , X-rays diffraction and SEM have been done in order to study the extracted salicylic . where in x-rays reflections at , 11°point to the presence of and SEM micrographs of the salicylic extracted varies in sizes and

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