|  |
| --- |
|  |
| A RESEARCH PROJECT ON NEEM, HPTLC ,USES AND ADVANTAGES |
|  |

|  |
| --- |
| . |

**NEEM**

Neem is a natural herb that comes from neem tree. It’s known for its pesticidal and insecticidal properties but people also use it in hair and dental products

**Advantages of neem**

1. Neem is a common pest repellent.
2. Some manufactures add neem to animal shampoos to repel ticks and fleas
3. Neem is a strong antioxidant ,neutralizing free radicals that influence development of some conditions
4. Neem has antimicrobial effects and may be effective against several types of bacteria, viruses and fungi
5. Other forms of neem can help control termites and repel moths
6. Neem is also a strong anti-inflammatory agent.

**Uses of neem**

1. It is used to treat wounds. leaves have an antiseptic property used to heal wound
2. It is used to treat Acne. it has an anti-inflammatory property which helps to reduce acne
3. It is used to nourish skin. It has vitamin E which help repair damaged skin cells
4. It is used to treat fungal infections.
5. It is used in detoxification. Consumption of neem leaves or powder stimulates kidney and liver increasing metabolism and eliminating toxins out of the body
6. It’s used to increase immunity. Its known for antimicrobial and antibacterial effects which play a huge role in boosting immunity
7. It is used to repel insect and mosquito. Burning neem leaves ward off the mosquitoes
8. It is used to prevent gastrointestinal diseases. Its anti-inflammatory properties help to reduce inflammation of the gastrointestinal tract which helps reduces a series of diseases like constipation, stomach ulcers and flatulence
9. It’s used to reduce dandruffs. it has antifungal and antibacterial properties which help to eliminate dandruff and strengthen your hair
10. It is used to reduce joint pain. Application of neem oil or extract on affected area help reduce the pain
11. It is used to exfoliate skin. It is used to remove dead cells from the surface of the skin which help to prevent growth of blemishes

**HPTLC**

Is an enhanced form of thin –layer chromatography. A number of enhancements can be made to the basic method of thin layer chromatography to automate the different steps to increase the resolution achieved and to allow more accurate quantitative measurements

**Principle of HPTLC**

It has similar approach and employs same physical principle of thin-layer chromatography (adsorption chromatography) i.e. principle of separation is adsorption. The mobile solvent flows through because of capillary action. The components move according to their affinities towards the adsorbent

**Advantages of HPTLC**

1. The cost of maintenance is low
2. The entire spectrum can be seen
3. Many analysts can work together on the same system
4. Uses low solvent consumption per sample
5. Solvent does not require any pre-treatment like filtration and degassing
6. Produces reliable quantification
7. Produces faster analysis
8. Its flexible to use
9. Coupling possibility of mass spectrometer
10. Analysis of multiple samples in parallel without cross contamination

**Uses of HPTLC**

1. Used to separate, identify and quantify components in a mixture
2. Used to control chemicals, pesticides, steroids water analysis
3. Widely used for analysis of vitamins, water soluble food dyes, pesticides in fruits ,vegetables and other food stuffs
4. Used for determination of quantity and purity of active ingredients as well as preservative in marketed formulations that may be synthetic or herbal

REFERENCES

1. “Neem Benefits and Uses.” Dr. Axe, 2022, https://draxe.com/nutrition/neem-benefits/.

2. Zlatkis A, Kaiser RE. HPTLC, high performance thin-layer chromatography. Amsterdam: Elsevier Science and Technology; 1977.

3. Sethi PD. HPTLC: High Performance Thin Layer Chromatography: Quantitative Analysis of Pharmaceutical Formulations. CBS Publishers and Distributors ; 1996.

4. Attimarad, M., Ahmed, K. M., Aldhubaib, B. E., & Harsha, S. (2012). High-performance thin layer chromatography: A powerful analytical technique in pharmaceutical drug discovery. Journal of Advanced Pharmaceutical Technology & Research, 3(2), 64–75. https://doi.org/10.4103/2231-4040.97298