

## Optimization and Characterization of Essential Oil from Black Pepper (Nigrum) Seeds using Distillation Extraction Method for Perfume Additives

*Wondifraw Abate\* and Shegaw Ahmed*

*Debrebrhan University, Ethiopia*

The black pepper (piper Nigrum) seed oils were highly concentrated substances extracted from seed. The study aims to utilize the seed as a source of oil for cosmetics perfume applications since piper Nigrum seed was cheap and grows abundantly in our country. It is an annual herbaceous plant. The characteristics of the seed are; the color is black after drying and the particle size for my experiment was 500, 750, 1000 micro meters. The condition operations to extract of the seed were 1atm and 30-250 minute. The seed produced colorless clear aromatic essential oil, used in the production of several licorous cosmetics and perfumery. The seeds was extracted by steam distillation because it had high conversion efficiency and necessarily for oil because of perfume properties addition. The distillation was carried out under controlled temperature and pressure. The optimum temperature of the extraction 105 oc, 127.5 oc, 150 oc the yield of the oil was

4.83% at the optimum conditions and the minimum yield 1.67%.The characteristic of piper Nigrum seed was strong pleasant aroma. These oils were often used for their cosmetics and their therapeutic or odoriferous properties, in a wide selection of products such as foods and medicines. Cosmetics oil was one of the most time and effort consuming processes. The Cosmetic composition mainly includes pigment, fatty acids, oleic acid 22.94% and hexandoxic acids octandoxic acid 8.61%. The antibacterial properties of the oils were 60% greater efficient. The acid value of the oil 5.3 by using NaOH titration with ethanol solution. The aroma odor was changed into good odor by addition of Lemmon oil. The Cosmetic products had homogeneous and stable during the application.

**Key words:** Nigrum seed, distillation, oleic acid, hexandoxic acid, Perfumes.

### Biography:

Wondifraw Abate Abera was raised in a small rural town south wello zone dessie in Amhara region that is part of Ethiopia known as the upper valley of Nile river. The city of dessie, like many small Ethiopian town, it contains a rich history from Africa continent that was anticolonial country in the world. His relationship with the learnt of designer in high school at the suggestion of his high school guidance counselor was lacking enough course to get certificate his class and preparatory and high school in general. He attended in Mekelle university (EIT-M) as chemical engineering in bachelor degree, but found his self-spending all his time when he was in the university of Mekelle, in 2015 a university friend invited him to come to visit Addis Ababa where he experienced to industries for the first time tried himself how to work every process especially in BGI Ethiopia Beer production process. He left to Mekelle University for graduation of first degree, after one year in 2016 he started studying his MSc in process engineering in Addis Ababa University, Addis Ababa Institute of Technology. From 2016 to 2018 he studied his MSc degree under school of chemical engineering. Many of his fellow students have gone onto have successful in chemical engineering careers but after only studying for a couple of years he found himself becoming engineer, finally after 2018 moved to his organization for work in his Institute of Technology in Debrebrhan University north Shewa zone in Amhara region, now he is a staff under lecturer position in chemical engineering department.