



STUDYING ESSENTIAL OIL TECHNOLOGY BASED ON LOCAL PLANT RAW MATERIALS

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Relevance: Rose oil, ointments, creams, and sprays based on it are currently widely used in cosmetology and dermatology. Ibn Sina noted that the Damask rose (nasrin) is useful for cooling nerves, helping with ringing and noise in the ears, and toothache. And in Bulgaria, a medicinal product called rozanol has been developed; its active ingredient is rose oil, which has antispasmodic, choleric, and bactericidal properties.

Several methods are used to extract essential oils. The oldest (traditional methods) and most commonly used methods are maceration and enfleurage, as the essential oils obtained from these methods retain the true scent and chemical composition of the flowers.

Maceration of petals in a neutral oil produces a "concentrate" (used in cosmetics), while enfleurage is a historical method for producing fine fragrances. Practical application: maceration releases aromatic content into the base oil (useful for cosmetics and aromatherapy).

The pure yield of rose oil is much higher: 0.02–0.05% by weight of petals (0.2–0.5 g per 1 kg of petals), depending on the variety and extraction conditions; or 1 kg per 375–400 kg of petals (depending on the method). This explains the high cost of the oil.

Objective: To develop a technology for extracting essential oil from rose petals (*Rosa damascena*) and recommend its use in cosmetology and dermatology. Many rose varieties are known to be grown in the Central Asian region, including Uzbekistan, and demand for them is always high.

Methods: Cold maceration was used to extract essential oils. Several oils were selected as extractants: olive, sunflower, and cottonseed. Based on its technical characteristics, olive oil was chosen as the most suitable extractant. The raw material-to-solvent ratio was studied at various values; the optimal ratio was 1:10. The optimal extraction time is 14-15 days.

For the experiment, approximately 10 grams of fresh morning rose petals were poured into 100 ml of olive oil until a glassy layer formed. The mixture was then left in a dark place for 14 days with the lid tightly closed. The temperature was maintained at various levels: 200°C, 300°C, and 400°C. 300°C proved to be the most optimal. Then, after the process was complete, the mixture was filtered through a cloth filter. Eight to ten layers of gauze were used for filtration. After 2 to 3 hours, the oil extract was filtered again..

Results: Over the course of 7 days, the essential oil is partially (17-20%) absorbed into the olive oil. The resulting mixture has a pleasant, subtle floral aroma. After 14 days of storage, the essential oil is completely absorbed, forming two layers and beginning the fermentation process. The olive-floral mixture acquires a honeyed aroma.

Conclusions: Optimal conditions (extraction time, temperature, and ratios of oil extract components, solvent, and raw materials) for producing essential oil from local rose petals have been determined. The developed technology preserves the active components of rose petals and ensures the stability of the oil extract during storage.