Lab Report: Analysis of Oil Samples

Test Report: 1562

Overview

The current study involved the analysis of oil samples using a variety of advanced analytical techniques. Each sample consisted of a mixture of oils and compounds subjected to specific methods to assess their concentration and physical properties.

Instruments Used:

Sample Analysis

1. Almond Oil Sample

Observation:

The almond oil sample was analyzed for multiple compounds. Using GC-2010, the presence of glycerin was detected at 500 ppm. Further detection of vitamin E concentration was achieved using the HPLC-9000 system, resulting in a measurement of 200 mg/L. The rheological behavior of the sample was explored with the R-4500 Rheometer, identifying a significant viscosity of 900 Pa-s. Finally, the viscometer VS-300 provided a reading of 7683.3 cP for the gum and glycerin mixture.

Results:

|  |  |  |  |
| --- | --- | --- | --- |
| **Compound** | **Method** | **Measurement** | **Units** |
| Glycerin | GC-2010 | 500 | ppm |
| Vitamin E | HPLC-9000 | 200 | mg/L |
| Cetyl Alcohol | - | - | - |
| Gum | VS-300 | 7683.3 | cP |

2. Jojoba Oil Sample

Observation:

The Jojoba oil mixture was subjected to NMR, ion chromatography, and spectrometry methods. The NMR-500 detected a vitamin E concentration of 15 ppm, indicative of the oil’s nutritional potential. Ion Chromatograph IC-2100 revealed the presence of gum at 10 mM, providing insights into its binding properties. Utilizing the Alpha-300 Spectrometer, we observed cetyl alcohol at a wavelength of 650 nm, suggesting potential optical characteristics.

Results:

|  |  |  |  |
| --- | --- | --- | --- |
| **Compound** | **Method** | **Measurement** | **Units** |
| Vitamin E | NMR-500 | 15 | ppm |
| Gum | IC-2100 | 10 | mM |
| Cetyl Alcohol | Alpha-300 | 650 | nm |

Additional Notes

Random Observation: The ambient lab temperature fluctuated between 22-24°C during testing, but this was deemed irrelevant to sample stability.

It's essential to note that the complex rheological measurements indicate a potential for both almond oil and jojoba oil mixtures in industrial applications due to their robust profiles.

Conclusion

The analysis presented provides a comprehensive overview of the chemical and physical properties of almond and jojoba oil mixtures. Each method applied generated valuable insights into the composition and potential applications of these oil samples. Future studies should explore the synergistic effects of these compounds in various formulations.

This document captures the essence of our investigation and reveals nuanced aspects of the oil compositions, though some details may require further elucidation or decentralization for more straightforward interpretation.