Lab Report: Analysis of Oil-Based Mixtures

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Introduction

The purpose of this study is to assess various oil-based mixtures using different analytical techniques. The combinations of Coconut Oil, Jojoba Oil, Almond Oil with other compounds like Cetyl Alcohol, Beeswax, Glycerin, and Vitamin E are tested for various physical and chemical properties. This report captures observations and results through multiple methods, addressing the complexity of these organic mixtures.

Experimental Methods

Ion Chromatography Analysis

Instrument:Ion Chromatograph IC-2100Sample Composition: Coconut Oil, Cetyl Alcohol, Vitamin EConcentration Measurement: 75.3 mM

Spectrophotometric Analysis

Instrument:Spectrometer Alpha-300Sample Composition: Jojoba Oil, Beeswax, Vitamin EWavelength Measurement: 520 nm

Conductivity Measurement

Instrument:Conductivity Meter CM-215Sample Composition: Almond Oil, Cetyl Alcohol, Vitamin EConductivity Recorded: 1250 μS/cm

Polymerase Chain Reaction (PCR)

Instrument:PCR Machine PCR-96Sample Composition: Coconut Oil, GlycerinCt Value: 18

Absorbance Reading

Instrument:Microplate Reader MRXSample Composition: Coconut Oil, Beeswax, Vitamin EOptical Density: 1.7 OD

Viscosity Measurement

Instrument:Viscometer VS-300Sample 1 Composition: Coconut Oil, Gum, Vitamin EViscosity: 5031.69 cP

Sample 2 Composition: Jojoba Oil, Gum, GlycerinViscosity: 1786.58 cP

Observations and Results

Observational Data

Results Compilation

A curious pattern emerged, indicating the presence of consistent cetyl alcohol influence when tested alongside oils known for emulsifying characteristics. Comparative analyses showed:

Irrelevant Data Scattering

Complex Data Presentation

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| --- | --- | --- | --- | --- |
| **Instrument** | **Sample ID** | **Composition** | **Measured Value** | **Unit** |
| Ion Chromatograph | IC-2100 | Coconut, Cetyl Alcohol, Vit E | 75.3 | mM |
| Spectrometer | Alpha-300 | Jojoba, Beeswax, Vit E | 520.0 | nm |
| Conductivity Meter | CM-215 | Almond, Cetyl Alcohol, Vit E | 1250.0 | μS/cm |
| PCR Machine | PCR-96 | Coconut, Glycerin, [None] | 18.0 | Ct |
| Microplate Reader | MRX | Coconut, Beeswax, Vit E | 1.7 | OD |
| Viscometer Sample 1 | VS-300 | Coconut, Gum, Vit E | 5031.69 | cP |
| Viscometer Sample 2 | VS-300 | Jojoba, Gum, Glycerin | 1786.58 | cP |

Complex Conclusions

Upon comprehensive analysis, the variable interplay of oils, alcohols, and natural extractants suggest a plausible foundational understanding of emulsion stability. Further examinations into the underlying ionic dissociations in Almond Oil are recommended. Additional correlation between viscosity and chromatographic profiles hints at undiscovered molecular interactions worthy of academic inquiry.

In summary, the intricate complexities of these oil-based mixtures provide a captivating glimpse into the multifaceted world of organic compound synergy. The necessity for protocol refinement is apparent, anchored around the random viscometric discrepancies and speculative hypotheses posed by our ion characterization.

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