# ENCAPSULATION OF *ROSA CANINA* EXTRACT IN LIPOSOMES PRODUCED BY THIN FILM METHOD

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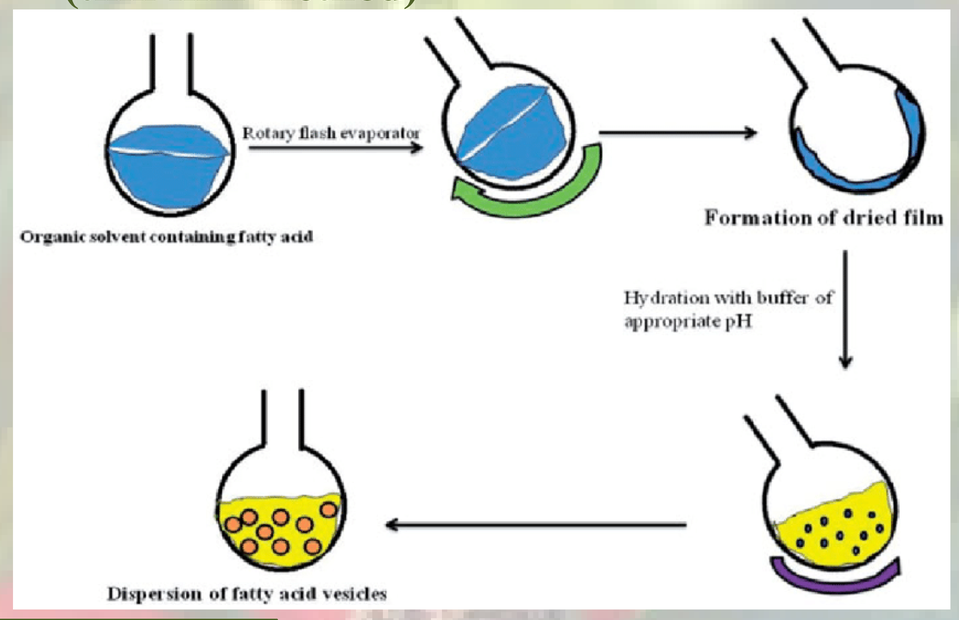
## Introduction

***Rosa canina*** **pseudo-fruit is rich in bioactive substances, such are carotenoids, ascorbic acid, polyphenols, fatty acids and minerals. Because of its diuretic, anti-inflammatory, anti-allergic and antioxidant properties it is frequently employed in traditional medicine. However, in order to protect mentioned bioactive compounds and to improve its bioavailability and controlled release, encapsulation methods have been developed.**

## Materials and Methods

**Extraction (percolation 25°C, 70% ethanol)** → **Encapsulation into Lipoid G liposomes (thin film method)**




- **Total polyphenol and flavonoid contents**
- **Antioxidant activity**
- **Encapsulation efficiency**
- **Particle size**
- **Polydispersity index**
- **Zeta potential**

## Results and Discussion

| samples | TPC [mg GAE/g] | TFC [mg CE/g] | ABTS [mg Trolox/g] | DPPH $IC_{50}$[mg/mL] |
|---|---|---|---|---|
| extract | 103.8±1.9 | 64.20±2.40 | 15.30±2.10 | 1.07±0.01 |
| liposomes+ extract | 0.316±0.023 | 0.219±0.009 | 0.134±0.004 | 270.6±10.5 |

| sample | EE [%] | Particle size [nm] | PDI | Zeta potential [mV] |
|---|---|---|---|---|
| liposomes+ extract | 46.6±3.4 | 618.2±10.9 | 0.441±0.007 | -10.24±0.95 |

**TPC and TFC of the extract were 103.8±1.9 mg of GAE/g of the extract and 64.2±2.4 mg of CE/g of the extract, respectively; antioxidant potential of the extract was 15.3±2.1 mg of Trolox equivalents/g of the extract (ABTS assay) and 1.07±0.01 mg/mL of the extract (DPPH assay). TPC and TFC of the extract loaded liposomes were 0.316±0.023 mg of GAE/mg of lipids and 0.219±0.009 mg of CE/mg of lipids, respectively; antioxidant potential of the sample was 0.134±0.004 mg of Trolox equivalents/mg of lipids (ABTS assay) and 270.6±10.5 mg/mL of liposomal suspension (DPPH assay). EE was the same during monitoring period and it was amounted 46.6±3.4%. Particle size and polydispersity index of the liposomes with extract were increased from 618.2±10.9 to 1698.0±104.2 nm and from 0.441±0.007 to 0.589±0.011, respectively, during 30 days. On the other hand, zeta potential of the extract loaded liposomes was decreased from -10.24±0.95 to -7.21±0.77 mV.**

## Conclusion

***R. canina*** **extract loaded liposomes developed in this study have potential to be used in food, pharmacological and cosmetic industries due to beneficial health effects of** ***R. canina*** **active compounds encapsulated into liposomes.**

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