

PREFACE

In this study, we investigated the septum of walnut kernel (*Jugulans regia*L.) by conducting several tests in vitro to know the properties of septum which is rich in polyphenolic compounds. As Iranian, in their ancient times uses this septum for diabetic patients especially the mellitus, against several disorders like thyroid, skin, colon, cancer as it works against inflammations, microbes, viruses.

Walnut septum fights against inflammation by decreasing the cytokines (interlukin-6 (IL-6), interlukin-8 (IL-8), interlukin-1 (IL-1 β)).

In vitro, after selecting the walnuts of fairly good size, checked if it's making any noise, and if it does not make a lot of noise upon rattle, it means that the septum system is mature and is protecting the walnut fruit/meat. Then checked the upper pole along the secondary seam so that the septum can be remove smoothly when wooden hammer was used upon pole of the walnut to crack open. Once it's open the septum has been removed cautiously and dried for 7 days away from sunlight, in order to remove moisture content which presents on natural basis in it.

The collected septum has divided into two methods to carry further processes. In the first method, walnut septum membrane was soaked directly into ethanol and distilled water mixture. In the second method septum was powdered by electric grinder, which then soak into ethanol and distilled water solvents of different ratios. Afterwards, by using whatmans filter paper, the mixture was filtered and collected the concentrated extract/ walnut septum solution WSS for further evaluations.

Evaluation parameters includes moisture content, Total Ash values, Boiling points, specific gravity, Density, viscosity, pH, HPTLC Analysis/HPLC Analysis. In vitro, Drug release profile of extracted solution and stability studies shows all solutions were under the range. The solution F1 give excellent drug release among F1-F10 tests range. The formulation made by distilled water gives less drug release compare to ethanol content formulation. Walnut septum membranes solution with ethanol would be a novel approach.

With the help of HPLC method, we found that the walnut septum membrane solution consists of flavonoids, catechins, rutein, myricetin, luteolin, quercetin, apigenin and kaemferol.

Keywords., Walnut, *Juglans regia* L. Kernel, Septum, thyroid