

Original Article

Dietary Phytochemical Agent Used As Anti-cancer DrugMaliha Ali¹, Maria², Muhammad Asim Bilal³*Tertiary Care Hospital, Lahore¹⁻², University of Wales, UK³***Abstract**

Background: Diabetes Mellitus is a disease characterized by high blood glucose level. Glucose level is increase in body because of defects in insulin production or due to its resistance by the body. This life threatening disease becomes more dangerous when it provokes different types of cancers directly or indirectly. Liver, pancreases and endometrium cancer has high risk of occurrence in diabetic patients. This study was done to check the anti-diabetic and anti-cancerous property of many phytochemicals like Extra Virgin Olive oil (EVOO). EVOO is a compound contains “oleocanthal” that has anti-inflammatory, anti-cancer and anti-diabetic property.

Methods: Therapy with EVOO was given to 100 diabetic patients and significant results were observed. Blood samples were collected before and after the therapy and processed for the purification of Apolipoprotein A1 (APO-A1). For this purpose Bradford method, sodium dodecyl sulfate-polyacrylamide gel electrophoresis (SDS-PAGE) and high performance liquid chromatography (HPLC) was done.

Results: Glucose level decreased from 252.95 ± 58.82 to 171.31 ± 24.6 similarly cholesterol and triglycerides decreased from 235.11 ± 38.24 to 165.26 ± 22.89 and 281.71 ± 134.43 to 163.65 ± 68.31 respectively. The expression of Apolipoprotein A1 increased after the therapy with EVOO. Different dietary phytochemicals derived from plants like curcumin, resveratol and lycopene etc. also have anti-inflammatory, anti-cancerous/anti-proliferative effects and can be used in halting the cell proliferation in cancer formation.

Conclusion: These natural remedies are less harmful and cost effective and can be used effectively in the treatment of diabetes and related cancers in future.

Key Words: Diabetes, Cancer, EVOO, Phytochemicals

How to cite this:

M Ali *et al.*, Dietary Phytochemical Agent Used as Anti-cancer Drug .J Acad Faml Phys Pak. 2020.13(2): 96-98.

Author: Maliha Ali

Email:captainmali2007@gmail.com

Introduction

Plants are the main sources for many medicines and these are cheaper than other

chemicals that are used in commercial drugs. One of the medicinal plants is *Olea europea*. Extra Virgin Olive Oil

(EVOO) extracted from this plant has many beneficial effects on health. EVOO has phenolic compounds besides many other important components like foleic acids, palmitic acids, some sterols and squalene. Human body contains a protein “Apolipoprotein-A1” or Apo-A1 whose lower expression is responsible for the onset of diabetes and EVOO can enhance its expression.

Risk of cancer increases in diabetic patients like risk of Hepatocellular Carcinoma (HCC) increases twice. Different dietary phytochemicals derived from plants like curcumin, resveratol and lycopene etc. have anti-inflammatory, anti-cancerous/ anti-proliferative effects and can be used in halting the cell proliferation in cancer formation

Objective

Main objective of this work was to explore the anticancer properties of that natural phytochemical, so that an effective therapy can be given and the risk of occurrence of cancer in diabetic patients ,especially, can be reduced.

Methods and Material:

Sampling: 100 diabetic and 100 control or healthy samples were collected from university health center and screened for Hepatitis B and C. Blood samples taken from same individuals before and after given therapy of EVOO for 3 months.

Biochemical Tests: After Screening all biochemical tests were performed using Automatic Analyser VITLAB Slectra Junior.

Apo-A1 Protein Estimation: Separation of serum proteins was done on the basis of their electric charge by SDS-PAGE. Then expression of Apolipoprotein-A1 (Apo-A1) was checked by using High Performance Liquid Chromatography (HPLC).

Effect of EVOO on Tumor Size: 3 groups of mice (positive control , negative control and test) was formed. In positive control aspirin and EVOO was administered interaperitoneally 30 minutes before the injection of acetic acid. In negative control normal saline was injected and in test acetic acid was injected and observe the results every 4th day for 28 days.

Conclusion

Hypothesis that EVOO help reduce glucose level in diabetic patients and its anti-proliferative proved to be correct. The results obtained were very much clear and significant which increase the confidence in using EVOO as a therapeutic agent in near future.

Result

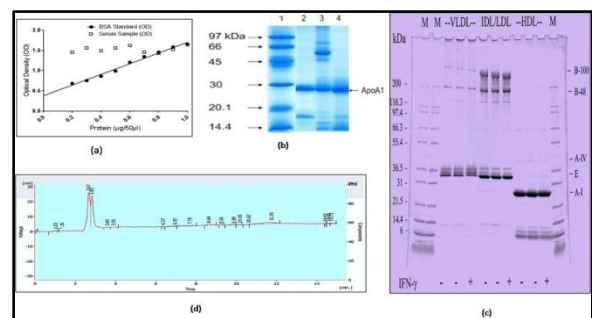


Fig 1: Different graph showing result

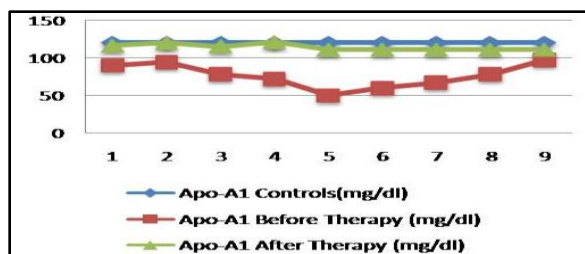


Fig 2: Apo A1 control, before and after therapy

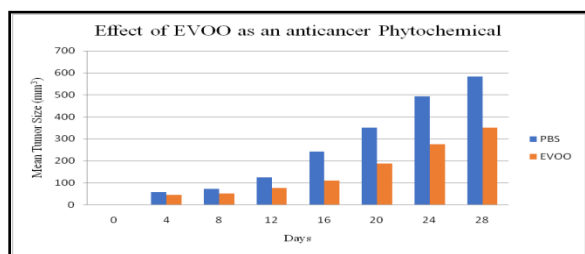


Fig 3: Effect of EVOO as anticancer phytochemical

Conflict of interest: None

Funding Sources: None

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