PRIMA
PARTNERSHIP FOR RESEARCH AND INNOVATION IN THE MEDITERRANEAN AREA

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newfeed
FEED FROM FOOD INDUSTRY BY-PRODUCTS

Valorization of Olive Cake as a By-product in Broiler Ration and its Effect on Growth, Carcass Characteristics and Blood Parameters

12th International Conference on Solid Waste Management- CYPRUS 2025

Turn food industry by-products into secondary feedstuffs via circular-economy schemes

Case study 3: olive cake-based ingredients for poultry, broiler chicken

Lead: HUSD-SDF-ISIS (Egypt)

CYPRUS 2025 Conference

Valorization of Olive Cake as a By-product in Broiler Ration and its Effect on Growth, Carcass Characteristics and Blood Parameters

Hassan. A. F. Rahmy[1,2], S. Nour El-Deen[2], F. M. Abosamra[2], A.E. M. Mahmoud[1], A. M. Khaled[2], A. S. M. Korayema[2]

[1] Department of Animal Production, Faculty of Agriculture, Cairo University, Egypt
[2] Faculty of Organic Agriculture Heliopolis University for Sustainable Development

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Presented by

Hassan Awny Fouad Rahmy
Assistant Professor
Fac. of Agric. Cairo Univ., Animal prod. Dep.
Fac. of organic Agric. Heliopolis Univ.
Member of the Animal Ethics Committee - Cairo Univ.
International trainer - Missouri State University – USA.
Manager of Moktar Farm For the Agriculture Sector- Giza.

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Introduction

Objective

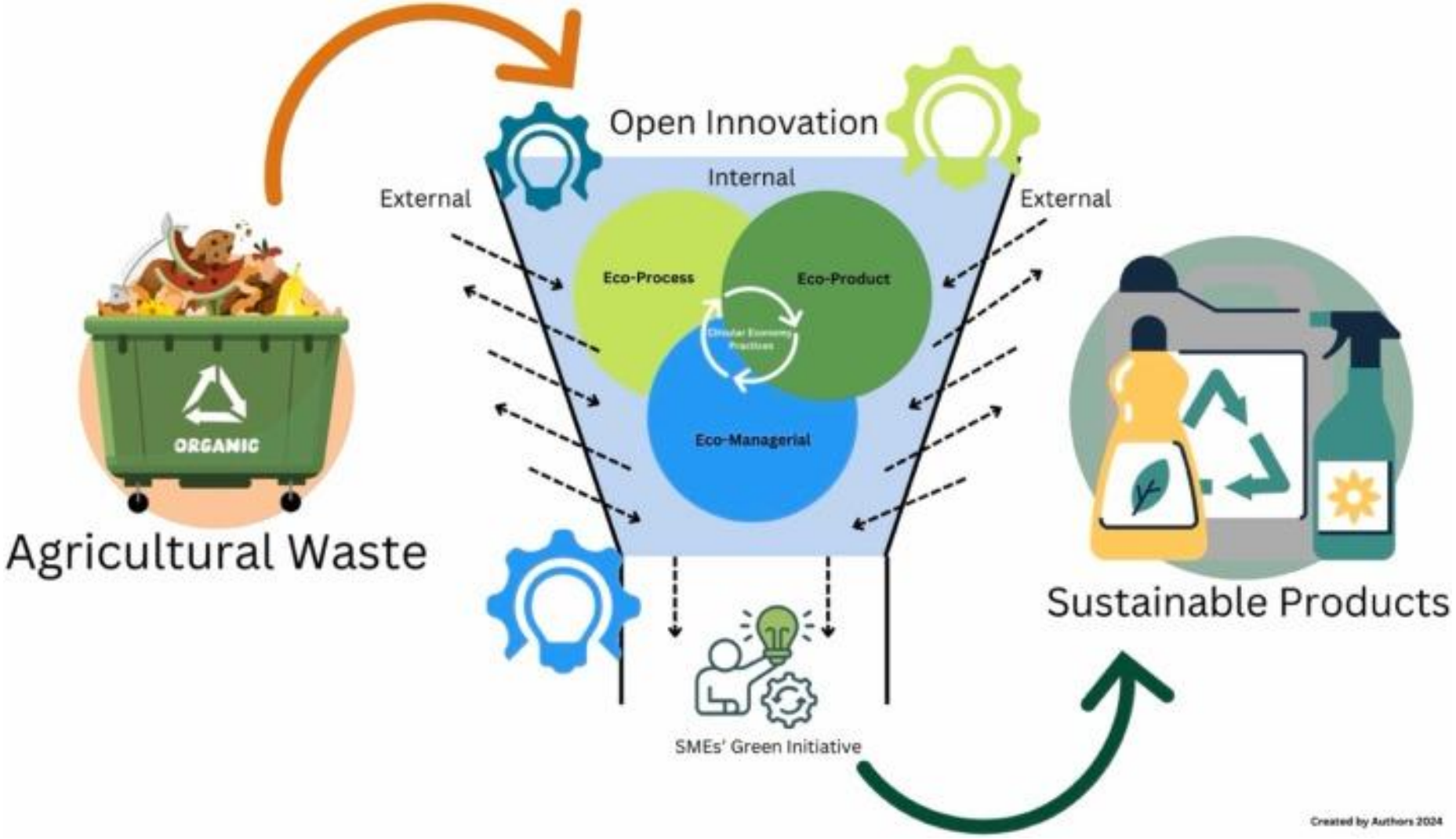
Material and Method

Result

Conclusion

Introduction

By-product


Open Innovation
Internal
External
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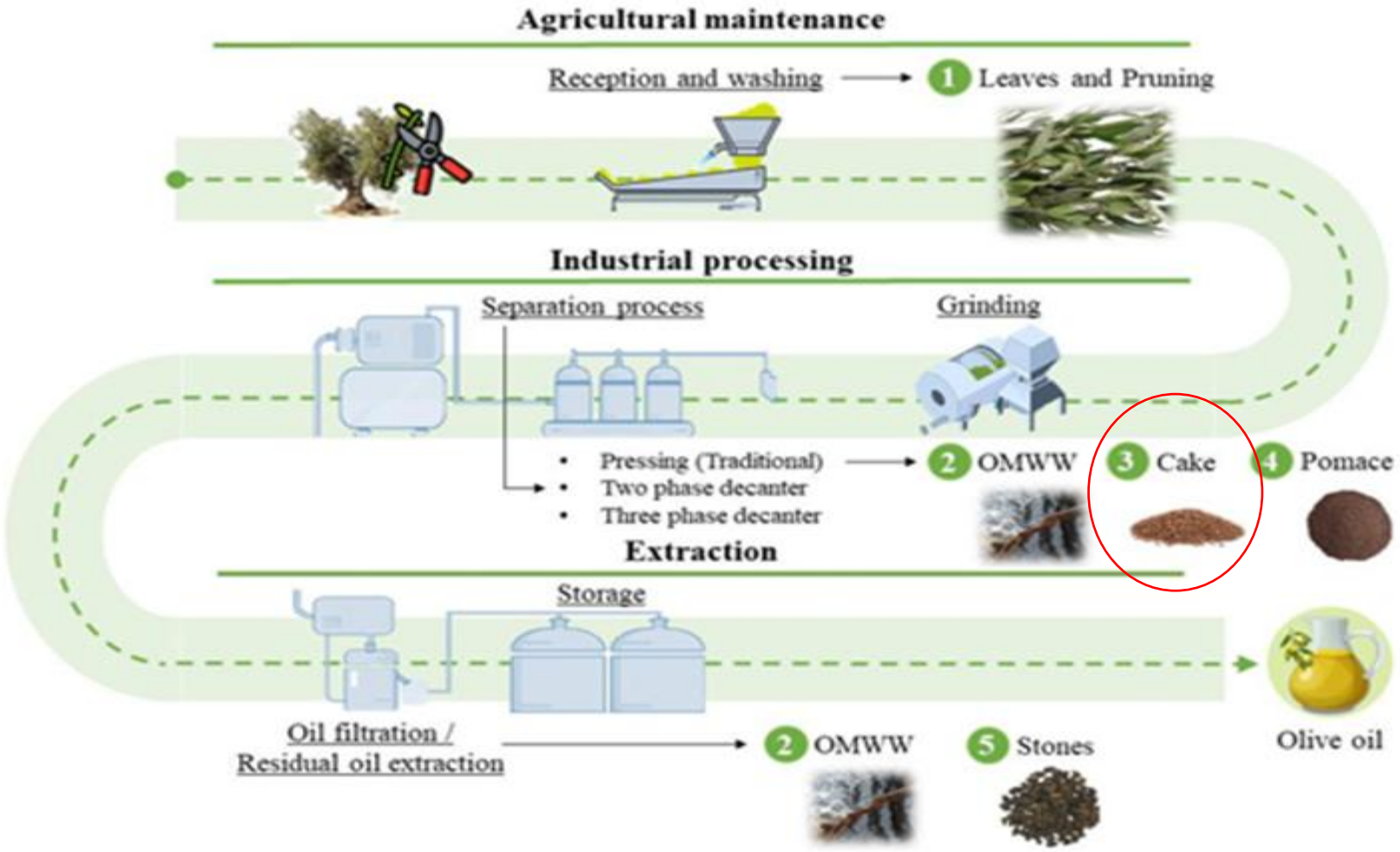
Eco-Process
Eco-Product
Eco-Managerial
ORGANIC
Agricultural Waste
Sustainable Products
SMEs' Green Initiative
Created by Authors 2024

Olive industry



Olive tree in Egypt

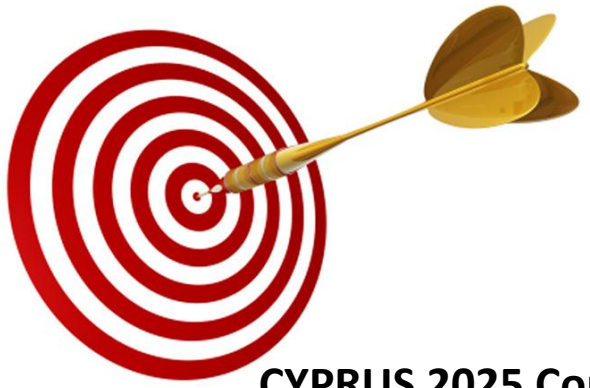
Egypt's production of olive oil is forecast to reach 42,200 tonnes in 2026. Egypt Olive Oil industry, reportlinker.com

The country ranked 10th, behind Argentina.

Greece, Italy, and Tunisia were the top three in terms of production.

Raw material

Objective



In this case, the challenge is to allow the complex fibers in the olive cake—lignin, cellulose, and hemicellulose—to decompose and be ingested by birds and **by supplementation of herbal and aromatic plants**, also study the effects of production on the growth rate, feed intake, Feed conversion ratio, blood parameters, and Carcass Characteristic.

Materials AND Methods

Olive Cake

Olive Cake is an olive oil industry by-product that is available in large quantities, especially in the Mediterranean Sea region.

The nutritional value of the Olive Cake.

Sample collection and chemical analysis

The chemical composition of the Untreated olive cake OC

	Untreated OC %(DM)
Ash	3.43
CP	6.53
CF	45.25
EE	14.77
NFE	35.19
NDF	91.77
ADF	74.26
ADL	41.74
HEMI.	17.83
CELL.	32.19
LIGN.	39.78
GE cal/Kg	4613

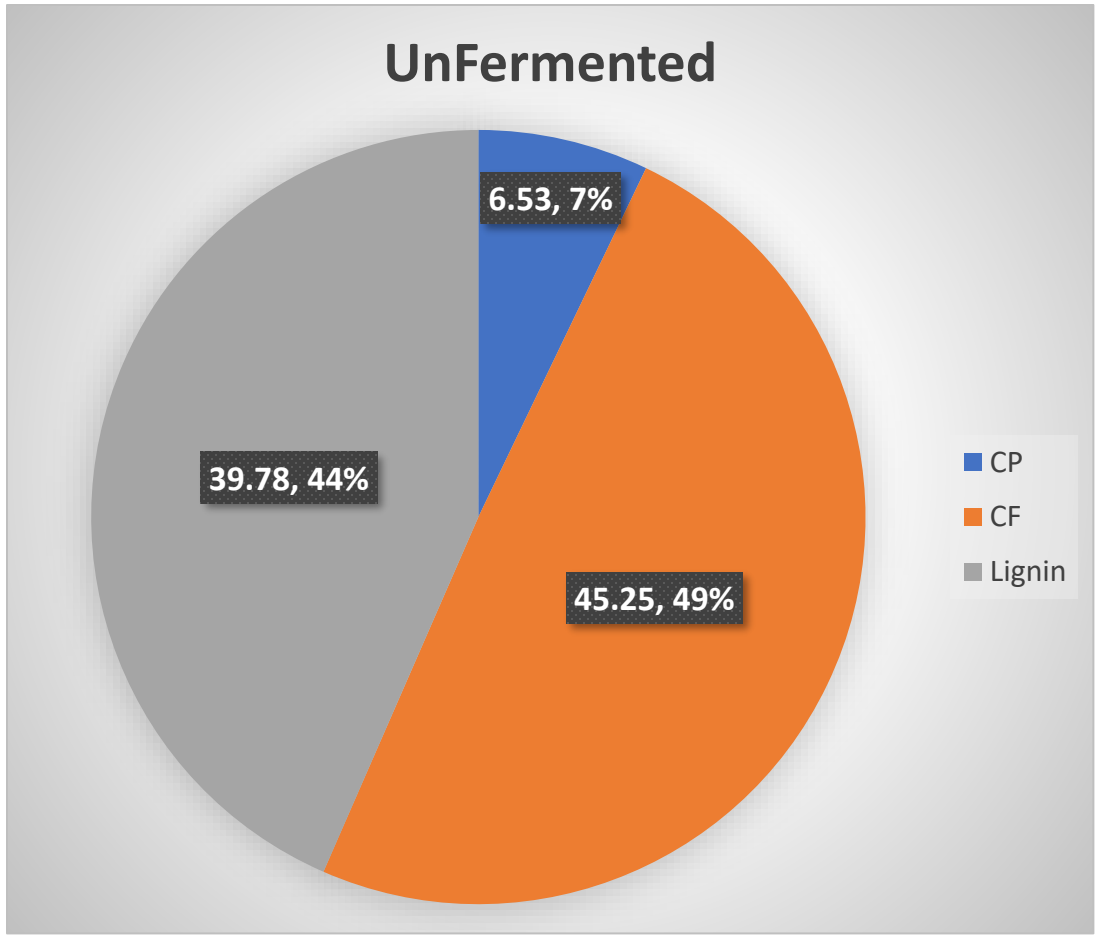
Experimental trail

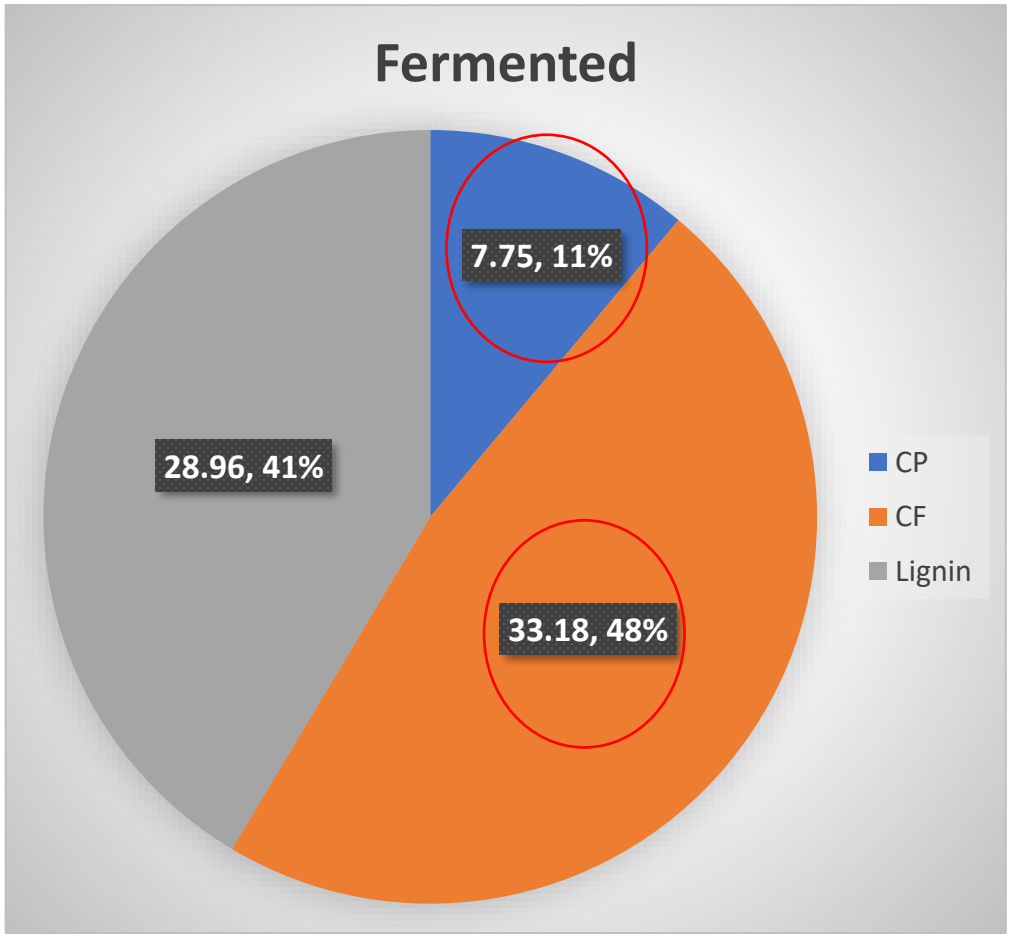
Lab. Scale Fermentation

Large Scale Fermentation

Bird Trail

Chemical analysis for the Fermented and un-fermented Olive Cake (on DM basis).





Experimental design
Bird trail

Experimental design

(broiler chicks)

5 to 28 day of life

Control group (C)

- Without FOC and feed additive

T (1) & (2) 40% of FOC

- With Feed additive
- Without Feed additive

T (3) & (4) 50% of FOC

- With Feed additive
- Without Feed additive

Experimental Feed

	Experimental Diet				
	C	T1	T2	T3	T4
Item	0%	40% W	40% WO	50% W	50% WO
Yellow corn	580	348	348	290	290
Soybean meal (44 %)	304	307	303	403	403
Corn gluten meal	48	48	48	48	48
Soybean oil	29	30	30	21	21
Olive cake	0	232	232	203	203
Herbal mixture	0	4	0	4	0
Calcium carbonate	12	10	12	10	10
Di-calcium phosphate	15	13	15	13	13
Common salt	3.5	3.5	3.5	3.5	3.5
Premix1	3	3	3	3	3
DL- Methionine	1.8	1.8	1.8	1.8	1.8
L-Lysine HCl	1.4	1.4	1.4	1.4	1.4
Toxenil	2.3	2.3	2.3	2.3	2.3

Measurement parameters

The Feed Efficiency for broiler chickens had been assessed by:

(a) Body weight gain (BWG), Feed intake, and Feed conversion ratio (FCR)

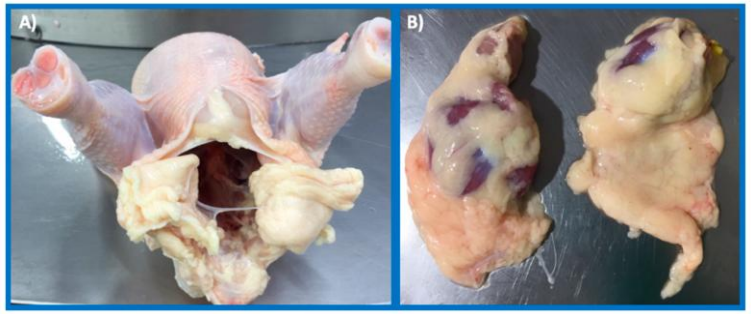
Follow up weight

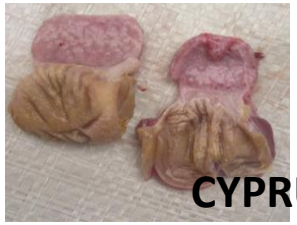
(b) Survival rate (%)

Measurement parameters

The Feed Efficiency for broiler chickens had been assessed by:

(d) Carcass characteristics, inner body organs, and lymphoid organs (spleen and bursa of Fabricius) ratios to live body weight



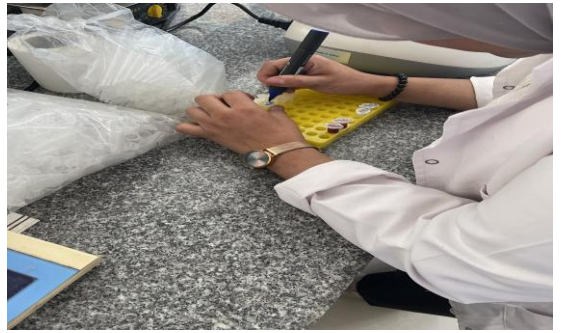


Measurement parameters

The Feed Efficiency for broiler chickens had been assessed by: <u>Cont.</u>

(e) Blood plasma lipid profiles (triglycerides, total cholesterol, low-density lipoprotein (LDL), high-density lipoprotein (HDL, Plasma very-low-density lipoprotein (VLDL) and total cholesterol-HDL-LDL)

(f) Health status of all birds at weekly intervals as well as whenever the responsible animal scientists observe any sign of malaise.

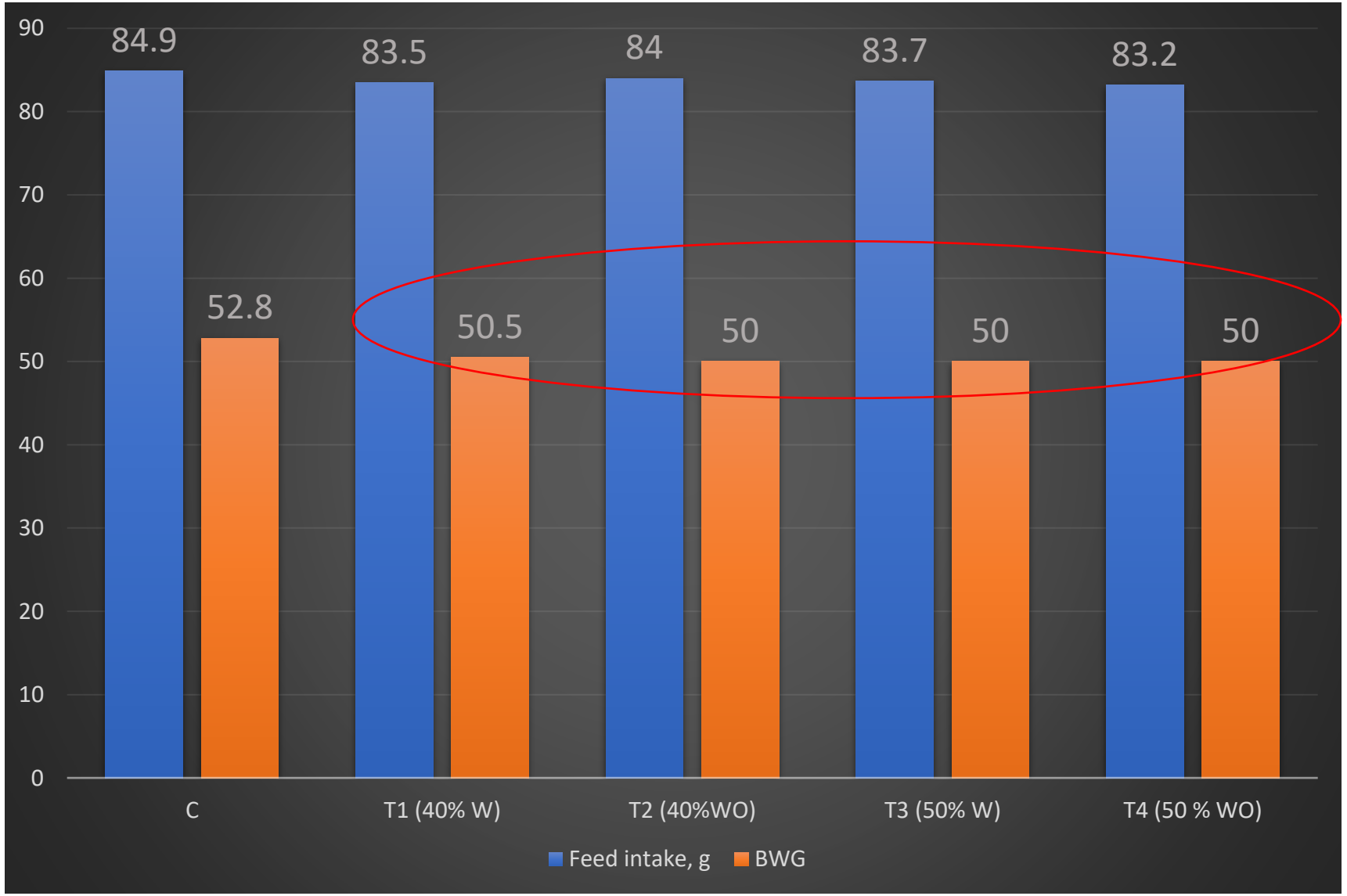



RESULTS

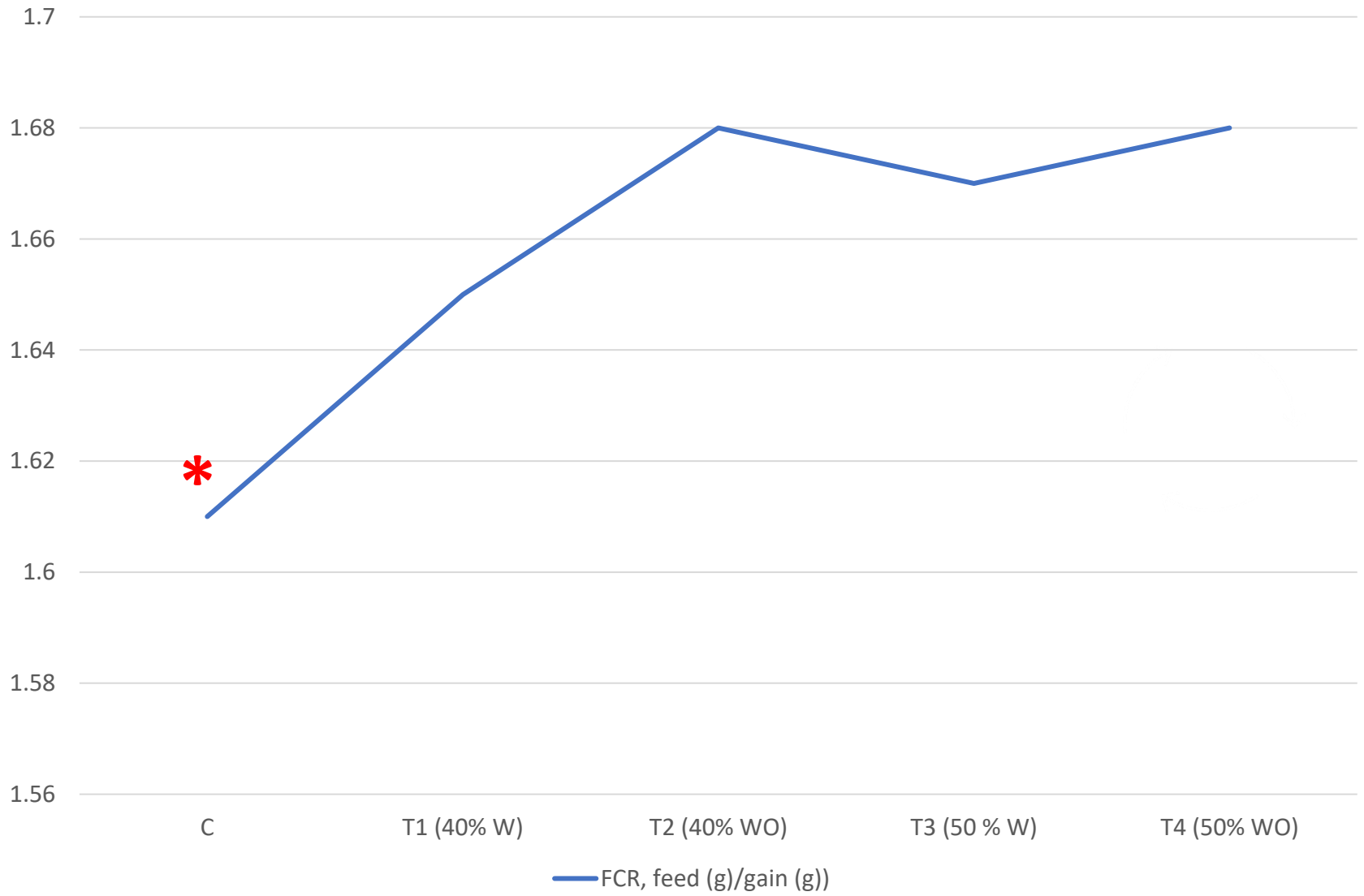
Experimental Result

Feed intake, body weight gain (BWG), and FCR

Feed intake, body weight gain (BWG) of broiler chickens fed diets with varying amounts of F-olive cake from 5 to 28 d of age



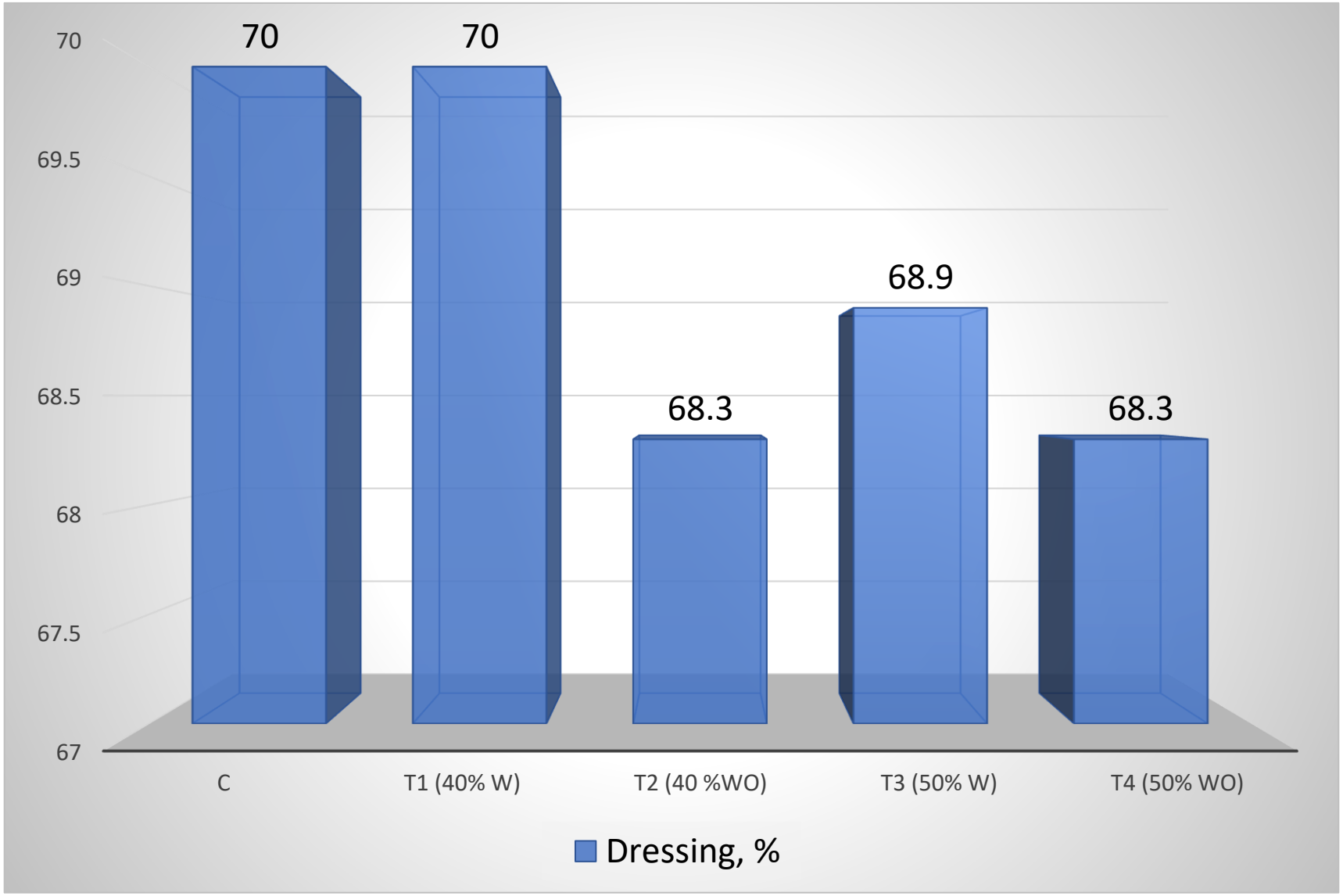
FCR , feed (g)/gain (g))of broiler chickens fed diets with varying amounts of F-olive cake from 5 to 28 d of age



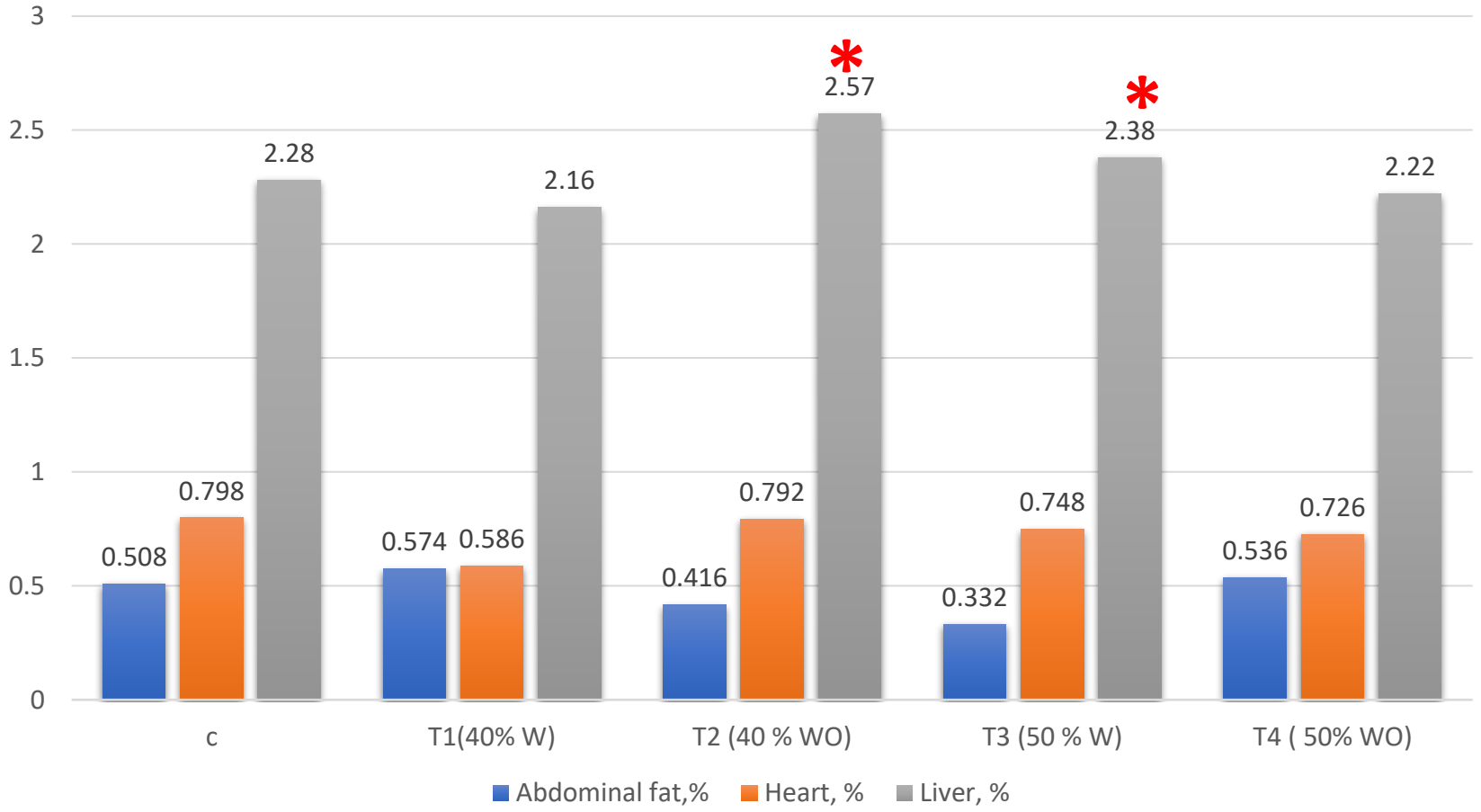
Experimental Result

Carcass and Inner organs ratios

The effect of F-olive cake with and without herbal mixture on carcass and inner organs ratios of 5 to 28-day-old.



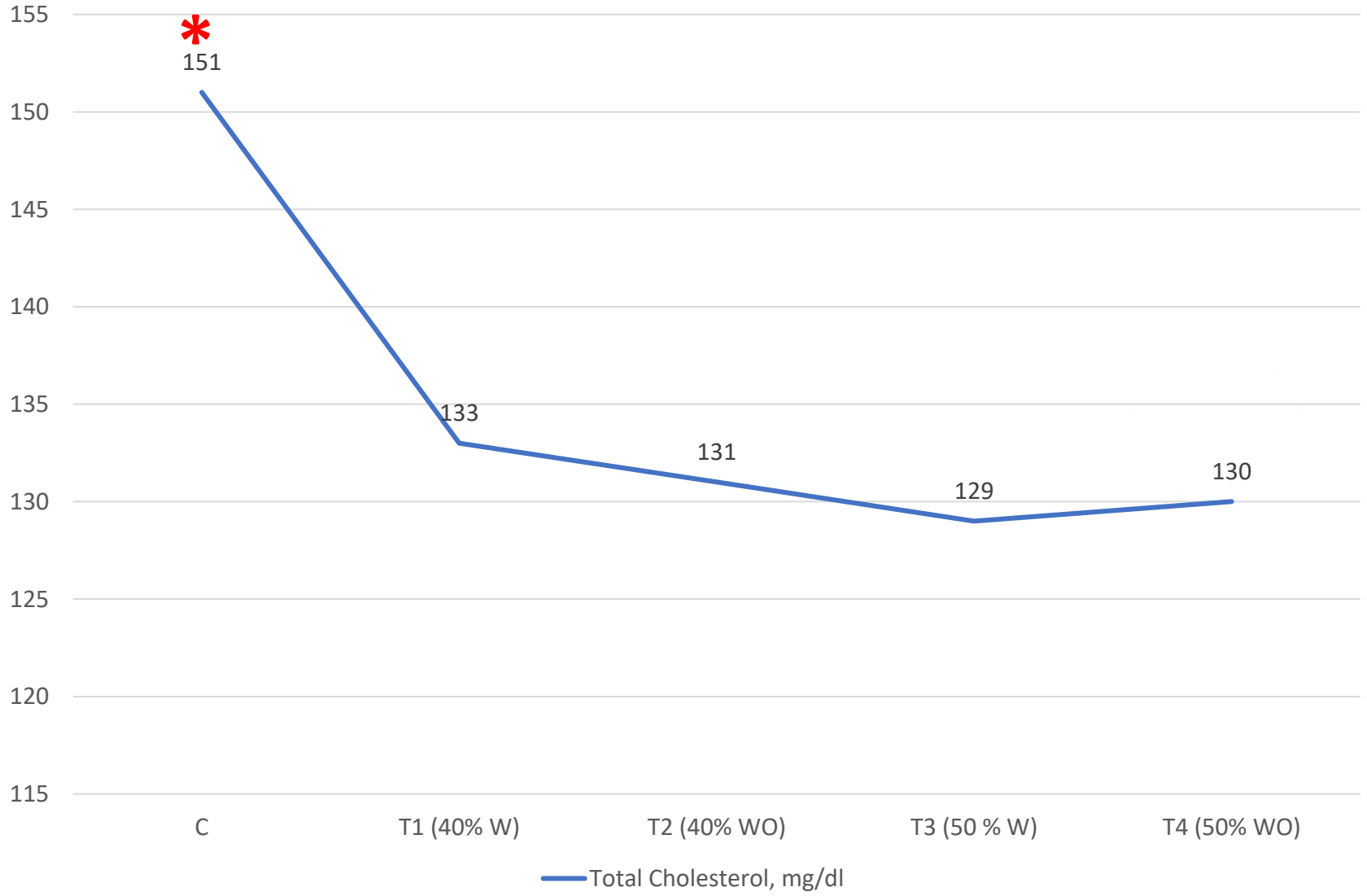
The effect of F-olive cake with and without herbal mixture on carcass and inner organs ratios of 5 to 28-day-old.



Experimental Result

Blood plasma analysis

Effect of diets containing olive Cake with and without herbal mixture on blood parameters of broiler chickens



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Conclusion

According to the findings in this study

- Even if the price of chicken ration is growing and animals are competing with humans for food, it is advised to use some of the waste portions of olives that humans do not eat as an **alternative source of feed additives for poultry.**
- Rations are administered when the appropriate processing processes are used since olive by-products can be put into broiler rations **without** impacting the Birds' health, performance, or nutrient content.

Conclusion

According to the findings in this study

- The economical and efficient utilization of these byproducts will benefit **businesses by reducing feed prices.**
- It has been found that **using these wastes** as a feed component in broiler rations, together with the appropriate processing methods, can reduce the cost of producing broilers overall and reduce the quantity of pollutants emitted into the environment.

Acknowledge

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Thank you

Any Questions?