

**DENEYSEL DİYABET
OLUŞTURULMUŞ SIÇANLARDA
QUERCETİN'İN ANTIOKSİDAN
SİSTEM VE BAZI KAN
PARAMETRELERİ ÜZERİNE ETKİSİ**

Gökmen KILINÇARSLAN



AKADEMİSYEN
KİTABEVİ

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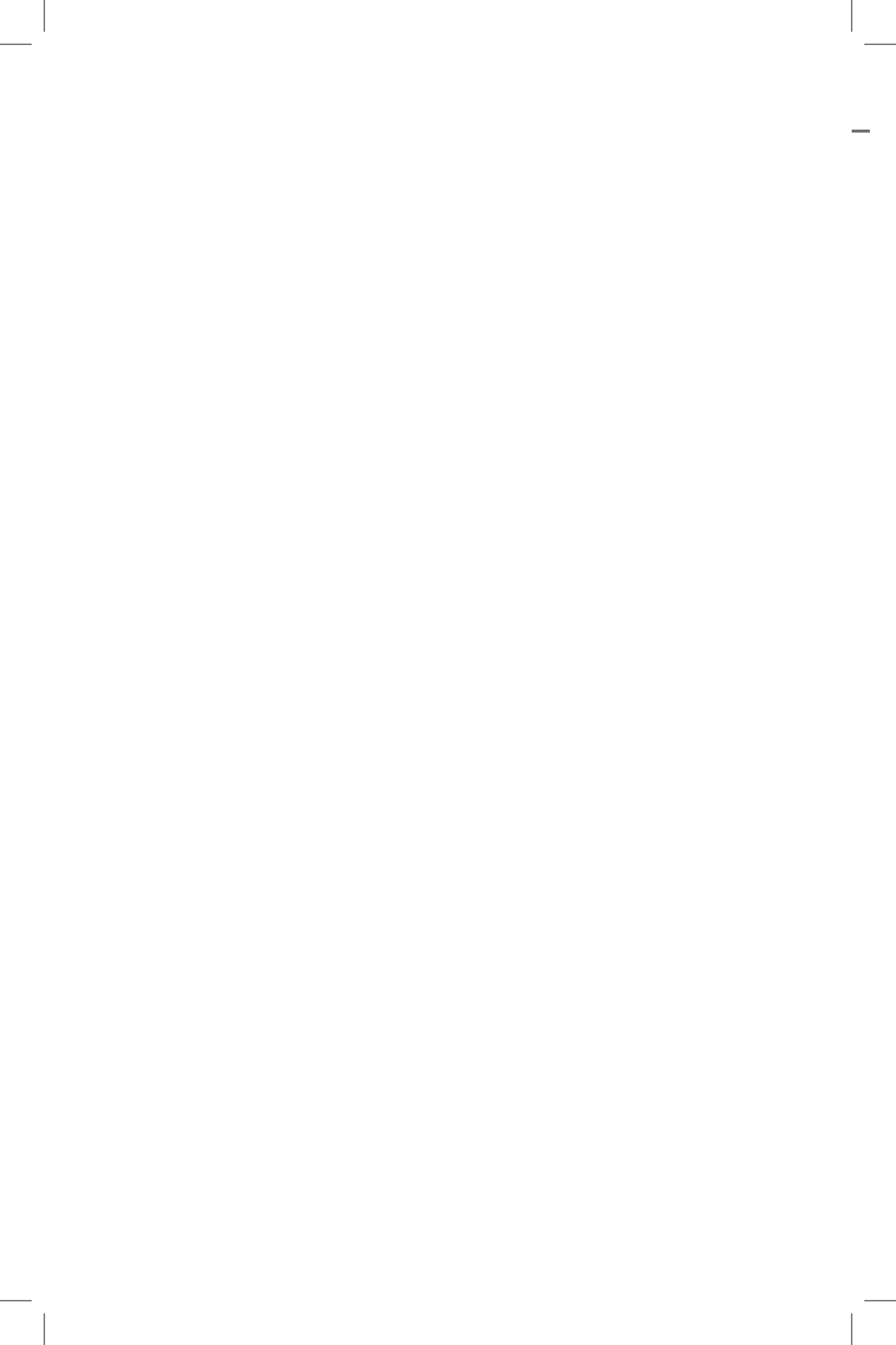
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ÖNSÖZ

“Deneysel Diyabet Oluşturulmuş Sıçanlarda Quercetin’in Anioksidan Sistem ve Bazı Karaciğer Enzimleri Üzerine Etkisi” isimli doktora tez çalışmasında; başta danışmanım Prof. Dr. Nurcan DÖNMEZ’e, Selçuk Üniversitesi Veteriner Fakültesi Fizyoloji Anabilim Dalı Başkanı Prof. Dr. Zafer DURGUN’a, çalışmalarım boyunca her zaman destek veren ve katkıda bulunan Prof.Dr. Erhan KESKİN’e ve laboratuvar çalışmalarında yardımlarını gördüğüm Fizyoloji Anabilim Dalı Araştırma Görevlilerine, S.Ü. Spor Bilimleri Fakültesi Öğretim Üyesi Doç. Dr. Oktay ÇAKMAKÇI ve Arş. Gör. Bekir MEHTAP’a, tez çalışmam boyunca her zaman yanımda olan ve manevi desteklerini esirgemeyen kıymetli eşime ve maddi olarak destek sağlayan S.Ü. Bilimsel Araştırma Projeleri Koordinatörlüğü’ne teşekkürlerimi sunarım



SİMGELER VE KISALTMALAR

- ADA:** Amerikan Diyabet Birliđi
- ALP:** Alkalen Fosfataz
- ALT:** Alanin Aminotransferaz
- AST:** Aspartat Aminotransferaz
- CAT:** Katalaz
- DM:** Diabetes Mellitus
- DNA:** Deoksiribonükleik Asit
- GDM:** Gestasyonel Diabetes Mellitus
- GGT:** Gama Glutamil Transpeptidaz
- GLUT:** Glikoz Transport Molekülleri
- GPx:** Glutatyon Peroksidaz
- GSH:** Glutatyon
- GST:** Glutatyon-S-Transferaz
- H₂O₂:** Hidrojen Peroksit
- HbA_{1c}:** Glikohemoglobin
- HO:** Hidroksil
- HOCl:** Hipokloroz Asit
- HOO:** Hidroperoksil
- IDDM:** İnsüline Bađımlı Diabetes Mellitus

IFG: Bozulmuş Açlık Glikozu

IGT: Bozulmuş Glikoz Toleransı

IRS: İnsülin Reseptör Substratı

LDL: Düşük Molekül Ağırlıklı Lipoprotein

LPO: Lipid Peroksidasyonu

MDA: Malondialdehit

NAD: Nikotinamid Adenin Dinükleotid

NADH: Nikotinamid Adenin Dinükleotid'in İndirgenmiş Hali

NADPH: Nikotinamid Adenin Dinükleotid Fosfat

NIDDM: İnsüline Bağımlı Olmayan Diabetes Mellitus

NO: Nitrik Oksit

NO⁺: Nitrosil

NO⁻: Nitroksit

O₂⁻: Süperoksit

OGTT: Oral Glikoz Tolerans Testi

RNS: Reaktif Nitrojenler

RO: Alkoksil

ROO⁻: Peroksil

ROS: Reaktif Oksijenler

Q: Quercetin

SOD: Süperoksit Dismutaz

STZ: Streptozotosin

TEMED: Türkiye Endokrinoloji ve Metabolizma Derneği

WHO: Dünya Sağlık Örgütü

ÖZET

Bu çalışmada streptozotosin (STZ) ile deneysel diyabet oluşturulan sıçanlarda quercetin uygulamasının antioksidan sistem ve bazı kan parametreleri üzerine etkilerinin belirlenmesi amaçlanmıştır.

Çalışmada canlı ağırlıkları birbirine yakın 32 adet yetişkin erkek Wistar Albino sıçan kullanıldı. Denemede kullanılan hayvanlar Kontrol (K), Diyabet (D), Quercetin (Q) ve Diyabet + Quercetin (DQ) olmak üzere 4 eşit gruba ayrıldı. Bütün gruplar deneme boyunca standart sıçan yemi ile beslendi. Kontrol grubunda yer alan sıçanlara herhangi bir uygulama yapılmadı, D ve DQ gruplarına ise 60 mg/kg STZ intraperitoneal enjeksiyonla tek doz olarak uygulandı. Q ve DQ grubuna (diyabet oluşuktan sonra) ise 15 mg/kg canlı ağırlık/gün quercetin intraperitoneal olarak çalışma boyunca enjekte edildi. Deneme diyabet oluşuktan sonra 4 hafta sürdürüldü.

Araştırmada deneme sonunda gruplardaki deneklerden alınan kan örneklerinde SOD, MDA, GSH, insülin, glikoz, ALT ve AST düzeyleri belirlendi. MDA düzeyinin diyabet oluşturulan sıçanlarda diğer üç gruba göre önemli ($p<0.05$) oranda arttığı belirlendi. Quercetin uygulanan grupta belirlenen MDA düzeyi kontrole benzerken, diyabet oluşturulduktan sonra quercetin takviyesi yapılan DQ grubunda ise MDA düzeyinin D grubuna göre önemli oranda düşük olduğu, K ve Q gruplarından elde edilen düzeylere ise yaklaştığı gözlemlendi ($p<0.05$). D grubunda serum glikoz, ALT ve AST düzeyleri diğer üç gruba (K, Q ve DQ) göre

anlamalı bir şekilde yüksek iken insülin düzeyi ise belirgin bir şekilde düşük olarak belirlendi ($p<0.05$). Buna karşın sadece Q grubundan elde edilen veriler ile K grubu verilerinin benzer olduğu, DQ grubundan da elde edilen bu verilerin de K ve Q grubuna benzer olduğu gözlemlendi.

Sonuç olarak, STZ ile deneysel diyabet oluşturulan sıçanlarda diyabetin bakılan parametreler açısından olumsuz etkilerinin görüldüğü bu çalışmada, etkin bir antioksidan olan quercetin uygulamasının sağlıklı sıçanlarda olumsuz etki oluşturmamasının yanı sıra diyabetlilerde meydana gelen bu olumsuz etkileri hafifletmesi bakımından dikkate değer görünmektedir.

Anahtar Sözcükler: Antioksidanlar; Diabetes Mellitus; Quercetin

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