Appendix B: List of Publication

1. Phytochemical Analysis, in vitro Anti-coagulant Activity of Different Solvent Fractions of Citrus medica Fruit Extract, Tuijin Jishu/Journal of Propulsion Technology ISSN: 1001-4055 Vol. 44 No. 5 (2023)

Tuijin Jishu/Journal of Propulsion Technology
ISSN: 1001-4055
Vol. 44 No. 5 (2023)

Phytochemical Analysis, in vitro Anti-coagulant Activity of Different Solvent Fractions of Citrus medica Fruit Extract

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[1*]Lecturer, shri B. K. Mody Government Pharmacy College, Rajkot, India, & Ph.D student, Atmiya University, Rajkot, Gujarat, India,
[2]Assistant Professor, Department of Pharmaceutical Sciences, Saurasthra University, Rajkot, Gujarat, India,
[3]Associate Professor, Atmiya Institute of Pharmacy, Atmiya University, Rajkot, Gujarat, India,

Abstract:

Background: Blood coagulation is an essential and tightly regulated process that swiftly forms clots. However, disruptions in blood coagulation are often observed in various disease conditions. This study focused on exploring the impact of partitioned solvent fractions of methanolic extract of citrus medica fruit anticoagulant using in vitro methods, seeking new therapeutic purposes for this plant. Dried and powdered fruit of citrus medica were extracted with 70% methanol, and the concentrated dried crude extract was subsequently subjected to liquid partitioning with petroleum ether, benzene, ethyl acetate, and butanol. Varying concentrations (2.5–10 mg/mL) of the fractions were tested in vitro on blood coagulation profile; clotting time (CT), prothrombin time (PT), and activated partial thromboplastin time (aPTT) and antioxidant potential. GCMS analysis of highest anticoagulant fraction was carried out.

Result: All fractions of citrus medica significantly ($P<0.05$) prolonged the clotting time, prothrombin and activated partial thromboplastin times. The highest prolongation effect was recorded with the butanol fraction at concentration of 7.5 mg/mL. From GCMS analysis data, fifteen compound present in butanol fraction to exhibit antioxidant and anticoagulant activity.

Conclusion: The study's findings highlight the potential of antioxidant and anticoagulant activity of citrus medica specifically its butanol fraction, as a promising and untapped source of bioactive molecules with therapeutic applications. It can be explored further for the development of new therapeutics targeting various health conditions. This discovery opens up exciting possibilities for harnessing the plant's bioactive molecules in the pursuit of novel therapeutic interventions.

Keywords: Blood coagulation, clotting time, prothrombin time, solvent partitioning, citrus medica

2. A Comprehensive Study on Phytochemical Analysis, in Vitro Antioxidant, and Anti-Coagulant Activities of Phenolic-Rich Solvent Fractions of Tecomella Undulata Bark Extract, Tuijin Jishu/Journal of Propulsion Technology ISSN: 1001-4055 Vol. 44 No. 5 (2023)

Tuijin Jishu/Journal of Propulsion Technology
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A Comprehensive Study on Phytochemical Analysis, in Vitro Antioxidant, and Anti-Coagulant Activities of Phenolic-Rich Solvent Fractions of Tecomella Undulata Bark Extract

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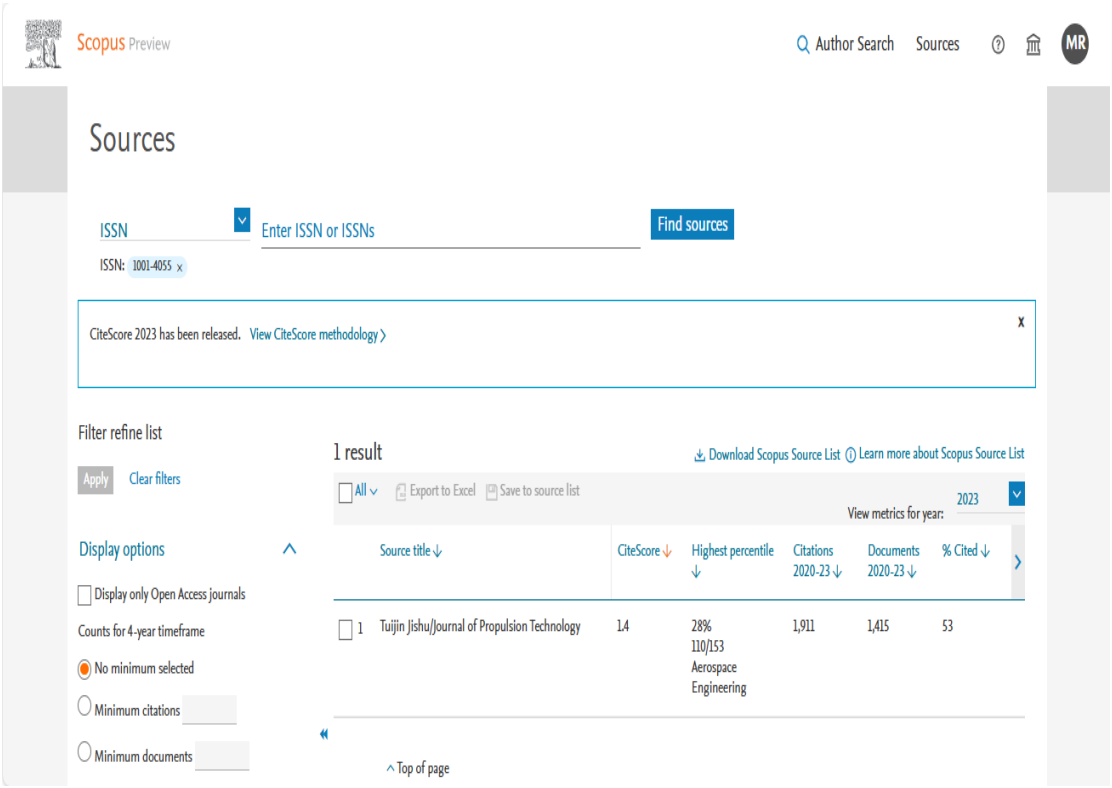
[2]Assistant Professor, Department of Pharmaceutical Sciences, Saurasthra University, Rajkot, Gujarat, India,
[3] Associate Professor, Atmiya Institute of Pharmacy, Atmiya University, Rajkot, Gujarat, India,

Abstract:

Background:
Blood coagulation is an essential and tightly regulated process that swiftly forms clots. However, disruptions in blood coagulation are often observed in various disease conditions. This study focused on exploring the impact of partitioned solvent fractions of methanolic extract of *Tecomella undulata* bark anticoagulant and antioxidant activities using in vitro methods, seeking new therapeutic purposes for this plant. Dried and powdered bark of *Tecomella undulata* were extracted with 70% methanol, and the concentrated dried crude extract was subsequently subjected to liquid partitioning with petroleum ether, benzene, ethyl acetate, and butanol. Varying concentrations (2.5–10 mg/mL) of the fractions were tested in vitro on blood coagulation profile; clotting time (CT), prothrombin time (PT), and activated partial thromboplastin time (aPTT) and antioxidant potential. GCMS analysis of highest anticoagulant fraction was carried out.
Result: All fractions of *Tecomella undulata* bark significantly ($P<0.05$) prolonged the clotting time, prothrombin and activated partial thromboplastin times. The highest prolongation effect was recorded with the butanol fraction at concentration of 7.5 mg/mL. From GCMS analysis data, ten compound present in butanol fraction to exhibit antioxidant and anticoagulant activity.
Conclusion: The study's findings highlight the potential of antioxidant and anticoagulant activity of *Tecomella undulata*, specifically its butanol fraction, as a promising and untapped source of bioactive molecules with therapeutic applications. It can be explored further for the development of new therapeutics targeting various health conditions. This discovery opens up exciting possibilities for harnessing the plant's bioactive molecules in the pursuit of novel therapeutic interventions.

Keywords: Blood coagulation, clotting time, prothrombin time, solvent partitioning, *Tecomella undulata* bark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1,911
1,415
53
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Appendix C: IAEC Certificate

B. K. Mody Government Pharmacy College
(Department of Technical Education Gujarat State)
B.Pharm Program Accredited by NBA
Polytechnic Campus, Near Aji Dam, Rajkot 360 003
Phone (O)+91-281- 2387156 Fax +91-281-2384279
Email:principalpharmacy1984@gmail.com Website: www.bkmp.cteguj.in

15 YEARS OF CELEBRATING THE MAHATMA

Certificate

This is to certify that the project proposal no. BKMGPC/IAEC28/RP91/2022 entitled "SCREENING OF INDIGENOUS PLANTS FOR ANTICOAGULANT ACTIVITY AND ISOLATION OF ACTIVE CONSTITUENT THERE FROM" submitted by Katbamna Rachanakumari Vasantbhai has been approved/recommended by the IAEC of B.K. Mody Govt. Pharmacy College, Rajkot in its meeting dated 17/03/2022 and has been sanctioned 48 Sprague dawley rats (either sex) under this proposal for a duration of next 06 months.

Authorized by	Name	Signature	Date
Chairman :	Dr. M.L. Rathod		17/3/22
Member Secretary:	Dr. J. I. Patel		17/3/22
Link Nominee of CPCSEA:	Dr. T. R. Desai		17/3/22

B. K. Mody Government Pharmacy College
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Phone (O)+91-281- 2387156 Fax +91-281-2384279
Email:principalpharmacy1984@gmail.com Website: www.bkmp.cteguj.in

Certificate

This is to certify that the project proposal no. **BKMGPC/IAEC30/RP105/2023** entitled **SCREENING OF INDIGENOUS PLANTS FOR ANTICOAGULANT ACTIVITY AND ISOLATION OF ACTIVE CONSTITUENT THERE FROM** submitted by **Katbamna Rachanakumari Vasantbhai** has been approved/recommended by the IAEC of B.K. Mody Govt. Pharmacy College, Rajkot in its meeting dated 10/03/2023 and has been sanctioned **48 SD Rats (either sex)** under this proposal for a duration of next 04 months.

Authorized by	Name	Signature	Date
Chairman :	Dr. A.V. Dudhrejiya	.....	10/3/2023
Member Secretary :	Dr. J. I. Patel	.....	10/3/23
Main Nominee of CPCSEA:	Dr. V. N. Naik	.....	10/3/23

Appendix D: Plant Authentication Certificate

H. & H. B. KOTAK INSTITUTE OF SCIENCE
Government of Gujarat, India
B+ Grade Accredited by NAAC
Dr.Yagnik Road, Rajkot-360 001 Phone/Fax: +91-281-2465643
Website: http://www.hhbkis.edu.in email: kotaksciencecollegerajkot@gmail.com
(Affiliated with Saurashtra University and UGC New Delhi 2(F) and 12(B) dated 18-06-1997)

પત્રક નંબર: 672
Dt. 12-7-2022

CERTIFICATE

This is to certify that the plant samples submitted by Ms. Rachanakumari Vasantbhai Katbamna, Lecture, B.K. Mody Govt. Pharmacy College, Rajkot have been identified as fruits of *Citrus medica* Linn., family – Rutaceae, Bark of *Tecomella undulata* L. family - Bignoniaceae and roots of *Sesamum indicum* L. family - Pedaliaceae.

Identified and Authenticated by

Rutva

Dr. Rutva H Dave
HOD, Asst. Professor,
Department of Botany,
H. & H. B. Kotak Institute of Science,
Rajkot, Gujarat.