



an Open Access Journal by MDPI

CERTIFICATE OF PUBLICATION

Certificate of publication for the article titled:

Synthesis and In-Vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs for Clinical Use

Authored by:

Rami Ayoub; Jamal Jilani; Qais Jarrar; Raad Alani; Chrismawan Ardianto; Khang Wen Goh; Dalia Ali; Said Moshawih

Published in:

Molecules 2022, Volume 27, Issue 9, 3023



Basel, April 2023



Ø

Journals (https://www.mdpi.com/about/journals/) Topics (https://www.mdpi.com/topics) Information (https://www.mdpi.com/guidelines)

Author Services (https://www.mdpi.com/authors/english) Initiatives About (https://www.mdpi.com/about)

~User Menu

Home (/user/myprofile)

Article Information Overview

Manage Accounts (/user/manage_accounts) Manuscript ID molecules-1555347 Change Password (/user/digwd) DOI 10.3390/molecules27093023 Edit Profile (/user/digwd) DOI 10.3390/molecules27093023 Edit Profile (/user/digwd) DOI Download Banner (PDF) (/publication/articler/banner/810977) ~ Submissions Menu ? Website Links Adata Submit Manuscript (/user/manuscripts/upload) Article type Article Submit Manuscript (/user/manuscripts/upload) Article type Article Submit Manuscript (/user/manuscripts/upload) Article type Article Submit Manuscript (/user/manuscripts/status) Journal Molecu/les (https://www.mdpi.com/journal/molecu/les) Manuscript (/user/manuscripts/status) Journal Molecu/les (https://www.mdpi.com/journal/molecu/les) Manuscript (/user/manuscripts/scatus) Journal Molecu/les kportary Research on Application in Food and Health (https://www.mdpi.com/journal/molecu/les/special_issues/Bio_cd_leatth) Discount Vouchers (/user/manuscripts/scatus) Special Issue Biofunctional Molecu/le Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecu/les/special_issues/Bio_cd_leatth) User/set/set/set/set/set/set/set/set/set/set	Home (/user/myprofile)		
Change Password (user/dpwt) DOI 10.3390/molecules27093023 Edit Profile (user/edit) Publication A4 Logout (user/logout) Certificate A4 Submissions Menu C Website Links Abstract (https://www.mdpi.com/1420-3049/27/9/3023) HTML version (https://www.mdpi.com/1420-3049/27/9/3023) HTML version (https://www.mdpi.com/1420-3049/27/9/3023) HTML version Submissions Menu C Website Links Abstract (https://www.mdpi.com/1420-3049/27/9/3023) HTML version Submissions Menu C Website Links Abstract (https://www.mdpi.com/1420-3049/27/9/3023) HTML version Submissions Menu C Website Links Astract (https://www.mdpi.com/1420-3049/27/9/3023/manuscript) Attice Submissions Menu C Article Links Synthesis and In-Vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs for Clinical Use Clinical Use (user/manuscripts/cubred Journal Molecules (https://www.mdpi.com/Journal/molecules/sections/medicinal_chemistry) English Editing Section Medicinal Chemistry (https://www.mdpi.com/Journal/molecules/sections/medicinal_chemistry) (user/fiscult_e	•	Manuscript ID	molecules-1655347
Edit Profile (/user/dogut) Publication Certificate Ad Submissions Menu I Banner Download Banner (PDF) (/publication/articler/banner/810977) < Submissions Menu I	Change Password	Status	Website online
Logout (luser/logout) Certificate Ad Submissions Menu Certificate Download Banner (PDF) (/publication/articler/banner/810977) Submissions Menu Certificate Download Banner (PDF) (/publication/articler/banner/810977) Submit Manuscript Abstract (https://www.mdpi.com/1420-3049/27/9/3023) HTML version (https://www.mdpi.com/1420-3049/27/9/3023/manuscript) Submits Manuscript Article type Display Submitted Article type Manuscripts User/manuscripts/status) Display Co-Authored Journal Molecules (https://www.mdpi.com/journal/molecules) Molecules (https://www.mdpi.com/journal/molecules) (user/manuscripts/co-authored) Special Issue 9 Invoices (luser/invoices) Special Issue Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry) (luser/discount_voucher) Abstract 2-(4-Chioropheny)-5-benzoxazoleacetate (MCBA), were synthesized, and their structures were confirmed by HNMR, IR, and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested using an milquimod (IMO)-induced psoriatic mouse model, in which mice were treated both topical (User/reviewer/status) Volumee ? PASI value. In addition, skin tissues of mice treate	(/user/chgpwd)	DOI	10.3390/molecules27093023
Logout (user/logout) Certificate Banner Download Banner (PDF) (/publication/articler/banner/810977) Submissions Menu • Abstract (https://www.mdpi.com/1420-3049/27/9/3023) HTML version (https://www.mdpi.com/1420-3049/27/9/3023) HTML version (https://www.mdpi.com/1420-3049/27/9/3023/manuscript) Submit Manuscript (user/manuscripts/upload) Article type Article View Manuscripts Article type Kinser/ips Title Synthesis and In-Vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs for Clinical Use Manuscripts Journal Molecules (https://www.mdpi.com/journal/molecules) Manuscripts Volume (user/manuscripts/co- authored) Issue Discount Vouchers Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry) Discount Vouchers Abstract (user/invoices) Abstract LaTex Word Count (user/invoices) Abstract Reviews G (user/invoices) the Abstract Reviews PASI value. (user/reviewer/status) You and uniquicid (MD)-induced psoriatic activities of CBA and MCBA howed less evidence of psoriatic alterations. whe as everity index (PASI). The study also ind	Edit Profile (/user/edit)	Publication	Α4
Submissions Menu Website Links Abstract (https://www.mdpi.com/1420-3049/27/9/3023) HTML version (https://www.mdpi.com/1420-3049/27/9/3023/htm) PDE version (https://www.mdpi.com/1420-3049/27/9/3023/htm) PDE version (https://www.mdpi.com/1420-3049/27/9/3023/htm) Submit Manuscript (user/manuscripts/upload) Article type Jospiay Submitted Title Synthesis and In-Vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs for Clinical Use Manuscripts Journal Molecules (https://www.mdpi.com/journal/molecules) Journal Molecules (https://www.mdpi.com/journal/molecules) Journal Molecules (https://www.mdpi.com/journal/molecules) Ipsipaly Co-Authored Journal Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry) (user/manuscripts/co- authored) Issue 9 Polish Editing Section Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sectial_issues/Bio_food_health) (user/invoices) Invoices ((user/invoices) Issue 9 Invoices ((user/invoices) Abstract 2-(4-Chlorophenyl)-5-benzoxazoleacetia caid (CBA) and its ester, methyl-2-(4-chloro-phenyl)-5-benzoxazoleacetia (MCBA), were synthesized, and their structures were confirmed by 'HNMR, IR, and mass spectrophotometry. The arhispartial catritions of the solution in the skin tissues of treated winoic of pororiasis were socred by calculating the pororiasis, area	Logout (/user/logout)	Certificate	
Submit Manuscript Inttps://www.mdpi.com/1420-3049/27/9/3023/htm) PDE version (https://www.mdpi.com/1420-3049/27/9/3023/htm) Submit Manuscript 3049/27/9/3023/htm) Manuscript (https://www.mdpi.com/1420-3049/27/9/3023/htm) Submitted Article Synthesis and In-Vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs for Clinical Use Manuscripts Journal Molecules (https://www.mdpi.com/journal/molecules) Manuscripts Volume 27 (luser/manuscripts/sco- authored) Issue 9 English Editing Section Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry) (luser/inscont_voucher) Abstract 2-(4-Chlorophenyl)-5-benzoxazoleacetic acid (CBA) and its ester, methyl-2-(4-chloro-phenyl)-5- benzoxazoleacetate (MCBA), were synthesized, and their structures were confirmed by 'HNMR, R. and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model, in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation or psoriasis were scored by calculating the portiasis area severty index (PAS). The study also included the determination of DBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriasificm, and hyperplasia. After administration of either topical or oral dosing, the anti- psoriatic effects were found to be stronger in MCBA-treated than in CBA-treated min, treated mic		Banner	Download Banner (PDF) (/publication/articler/banner/810977)
Submit Manuscript 3049/27/9/3023/pdf) Manuscript //Manuscript	Submissions Menu 🛛	Website Links	
Display Submitted Atticle type Atticle Manuscripts Title Synthesis and In-Vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs for Clinical Use (user/manuscripts/status) Journal Molecules (https://www.mdpi.com/journal/molecules) Display Co-Authored Journal Molecules (https://www.mdpi.com/journal/molecules) Manuscripts/co-authored Volume 27 (user/manuscripts/co-authored) Section Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry) (user/manuscripts/co-authored) Special Issue 9 (user/invoices) Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health) (/user/discount, voucher) Abstract 2-(4-Chlorophenyl)-5-benzoxazoleacetic acid (CBA) and its ester, methyl-2-(4-chloro-phenyl)-5-benzoxazoleacetate (MCBA), were synthesized, and their structures were confirmed by ¹ HNMR, IR, and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested using an imiguimod (IMQ)-induced psoriatic activities of CBA and McBA were tested tooth topically (1% w/w) and oral value (In administration of CBA and MCBA showed less (/user/reviewer/status) Volunteer Preferences (/user/reviewer_info/view) evidence of psoriatic afteration, such as hyperkeratosis, scale curst, edema, psoriasis/maintenind/ value. In addition, skin tissues of mice al vith CBA and MCBA	Submit Manuscript		
Manuscripts Title Synthesis and In-Vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs for Clinical Use Manuscripts Journal Molecules (https://www.mdpi.com/journal/molecules) Display Co-Authored Journal Molecules (https://www.mdpi.com/journal/molecules) Manuscripts Volume 27 (user/manuscripts/co- authored) Issue 9 English Editing Section Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry) (user/me_english_article/status) Special Issue Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health) (user/invoices) Abstract 2-(4-Chlorophenyl)-5-benzoxazoleacetic acid (CBA) and its ester, methyl-2(4-chloro-phenyl)-5- benzoxazoleacetate (MCBA), were synthesized, and their structures were confirmed by ¹ HNMR, IR, and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model, in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis were scored by calculating the psoriasis area severity index (PASI). The study also included the determination of histopathological alterations in the skin tissues of treated mice. Topical and oral administration of CBA and MCBA testo are were comparable to those produced is, paysinficant decrease in the PASI value. In addition, skin issues of mice treated with CBA and MCB	(/user/manuscripts/upload)	Article type	Article
Display Co-Authored Journal Molecules (https://www.mdpi.com/journal/molecules) Manuscripts Volume 27 (/user/manuscripts/co- authored) Issue 9 English Editing Section Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry) (/user/pre_english_article/status) Special Issue Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health) Discount Vouchers Abstract 2-(4-Chlorophenyl)-5-benzoxazoleacetic acid (CBA) and its ester, methyl-2-(4-chloro-phenyl)-5- benzoxazoleacetate (MCBA), were synthesized, and their structures were confirmed by ¹ HNMR, IR, and mass spectophometry. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model, in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis were socred by calculating the psoriasis area severity index (PASI). The study also included the determination of thistopathological alterations in the skin tissues of treated mice. Topical and oral administration of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease in the PASI value. In addition, skin tissues of mice treated with CBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriasiform, and hyperplasia. After administration of either topical or oral dosing, the anti- psoriatic effects were found to be stronger in MCBA-treated than in C	Manuscripts	Title	,
Manuscripts Volume 27 (/user/manuscripts/co- authored) Issue 9 English Editing Section Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry) (/user/pre_english_article/status) Special Issue Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health) (/user/fore_english_article/status) Special Issue Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health) (/user/fdiscount_voucher) Abstract 2-(4-Chlorophenyl)-5-benzoxazoleacetic acid (CBA) and its ester, methyl-2-(4-chloro-phenyl)-5- benzoxazoleacetate (MCBA), were synthesized, and their structures were confirmed by 'HNMR, IR, and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model, in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis were scored by calculating the psoriasis area severity index (PASI). The study also included the determination of histopathological alterations in the skin tissues of treated mice. Topical and oral administration of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease in intensity, thickness, and desquamation, which was demonstrated by a significant decrease in the PASI value. In addition, skin tissues of mice treated with CBA and MCBA showed less evidence of psoriatic alterations, suc	,	Journal	Molecules (https://www.mdpi.com/journal/molecules)
authored) Issue 9 English Editing Section Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry) (/user/pre_english_article/status) Special Issue Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health) (/user/discount_voucher) Abstract 2-(4-Chlorophenyl)-5-benzoxazoleacetic acid (CBA) and its ester, methyl-2-(4-chloro-phenyl)-5- benzoxazoleacetate (MCBA), were synthesized, and their structures were confirmed by ¹ HNMR, IR, and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested using an imquimod (IMQ)-induced psoriatic mouse model, in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis were scored by calculating the psoriasis area severity index (PASI). The study also included the determination of histopathological alterations in the skin tissues of treated mice. Topical and oral administration of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease in the PASI value. In addition, skin tissues of mice treated with CBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriatic effects were found to be stronger in MCBA-treated mine. These effects were comparable to those produced by Clobetasol propionate, the reference drug. This drug discovery could be translated into a potential new drug for future clinical use in psoriasis treatment.		Volume	27
English Editing Control (/user/pre_english_article/status) Special Issue Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health) Discount Vouchers Abstract 2-(4-Chlorophenyl)-5-benzoxazoleacetic acid (CBA) and its ester, methyl-2-(4-chloro-phenyl)-5- benzoxazoleacetate (MCBA), were synthesized, and their structures were confirmed by ¹ HNMR, IR, and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model, in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis were scored by calculating the psoriasis area severity index (PASI). The study also included the determination of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease in the PASI value. In addition, skin tissues of mice treated with CBA and MCBA showed less evidence of psoriaic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriaif ceffects were found to be stronger in MCBA-treated than in CBA-treated mice. These effects were comparable to those produced by Clobetasol propionate, the reference drug. This drug discovery could be translated into a potential new drug for future clinical use in psoriasis treatment.		Issue	9
Discount Vouchers (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health) (/user/discount_voucher) Abstract Invoices (/user/invoices) Abstract LaTex Word Count 2-(4-Chlorophenyl)-5-benzoxazoleacetic acid (CBA) and its ester, methyl-2-(4-chloro-phenyl)-5-benzoxazoleacetate (MCBA), were synthesized, and their structures were confirmed by ¹ HNMR, IR, and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model, in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis were scored by calculating the psoriasis area severity index (PASI). The study also included the determination of histopathological alterations in the skin tissues of treated mice. Topical and oral administration of CBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriasiform, and hyperplasia. After administration of either topical or oral dosing, the antipsoriatic effects were found to be stronger in MCBA-treated than in CBA-treated mice. These effects were comparable to those produced by Clobetasol propionate, the reference drug. This drug discovery could be translated into a potential new drug for future clinical use in psoriasis treatment.	English Editing	Section	Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry)
Discount volchers Later the term of the term of the term of term	(/user/pre_english_article/status)	Special Issue	
Invoices (/user/invoices) LaTex Word Count (/user/get/latex_word_count) Reviewers Menu • Reviewers Menu • Reviewers (/user/reviewer/status) Volunteer Preferences (/volunteer_reviewer_info/view) benzoxazoleacetate (MCBA), were synthesized, and their structures were confirmed by ¹ HNMR, IR, and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model, in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis were scored by calculating the psoriasis area severity index (PASI). The study also included the determination of histopathological alterations in the skin tissues of treated mice. Topical and oral administration of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease in the PASI value. In addition, skin tissues of mice treated with CBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriasiform, and hyperplasia. After administration of either topical or oral dosing, the anti- psoriatic effects were found to be stronger in MCBA-treated than in CBA-treated mice. These effects were comparable to those produced by Clobetasol propionate, the reference drug. This drug discovery could be translated into a potential new drug for future clinical use in psoriasis treatment.			
IR, and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model, in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis were scored by calculating the psoriasis area severity index (PASI). The study also included the determination of histopathological alterations in the skin tissues of treated mice. Topical and oral administration of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease in the PASI value. In addition, skin tissues of mice treated with CBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriasiform, and hyperplasia. After administration of either topical or oral dosing, the anti- psoriatic effects were found to be stronger in MCBA-treated than in CBA-treated mice. These effects were comparable to those produced by Clobetasol propionate, the reference drug. This drug discovery could be translated into a potential new drug for future clinical use in psoriasis treatment.		Abstract	
(/user/get/latex_word_count) using an imiguined (integ/induced psoriatic induse in	, ,		IR, and mass spectrophotometry. The anti-psoriatic activities of CBA and MCBA were tested
Reviewers Menu Image: The study also included the determination of histopathological alterations in the skin tissues of treated mice. Topical and oral administration of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease in the PASI value. In addition, skin tissues of mice treated with CBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriasiform, and hyperplasia. After administration of either topical or oral dosing, the antipsoriatic effects were found to be stronger in MCBA-treated than in CBA-treated mice. These effects were comparable to those produced by Clobetasol propionate, the reference drug. This drug discovery could be translated into a potential new drug for future clinical use in psoriasis treatment.			topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and
Reviews the PASI value. In addition, skin tissues of mice treated with CBA and MCBA showed less (/user/reviewer/status) evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriasiform, and hyperplasia. After administration of either topical or oral dosing, the anti-psoriatic effects were found to be stronger in MCBA-treated than in CBA-treated mice. These effects were comparable to those produced by Clobetasol propionate, the reference drug. This drug discovery could be translated into a potential new drug for future clinical use in psoriasis treatment.	Reviewers Menu		The study also included the determination of histopathological alterations in the skin tissues of treated mice. Topical and oral administration of CBA and MCBA led to a reduction in erythema
Volunteer Preferences psoriatic effects were found to be stronger in MCBA-treated than in CBA-treated mice. These (/volunteer_reviewer_info/view) effects were comparable to those produced by Clobetasol propionate, the reference drug. This drug discovery could be translated into a potential new drug for future clinical use in psoriasis treatment.			the PASI value. In addition, skin tissues of mice treated with CBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema,
(/volunteer_reviewer_info/view) effects were comparable to those produced by Clobetasol propionate, the reference drug. This drug discovery could be translated into a potential new drug for future clinical use in psoriasis treatment.	Volunteer Preferences		
	(/volunteer_reviewer_info/view)		effects were comparable to those produced by Clobetasol propionate, the reference drug. This
		Keywords	
Data is of paramount importance to scientific progress, yet most research data drowns in			Data is of paramount importance to scientific progress, yet most research data drawns in

Data is of paramount importance to scientific progress, yet most research data drowns in supplementary files or remains private. Enhancing the transparency of the data processes will help to render scientific research results reproducible and thus more accountable. Co-submit your methodical data processing articles or data descriptors for a linked data set in Data (https://www.mdpi.com/journal/data) journal to make your data more citable and reliable.

- Deposit your data set in an online repository, obtain the DOI number or link to the deposited data set.
- · Download and use the Microsoft Word template (https://www.mdpi.com/files/wordtemplates/data-template.dot) or LaTeX template (https://www.mdpi.com/authors/latex) to prepare your data article.
- Upload and send your data article to the Data (https://www.mdpi.com/journal/data) journal here (/user/manuscripts/upload?

form%5Bjournal_id%5D=176&form%5Barticle_type_id%5D=47).

Submit To Data (/user/manuscripts/upload? form%5Bjournal_id%5D=176&form%5Barticle_type_id%5D=47)

Author Information

data

Submitting Author Long Chiau Ming Corresponding Rami Ayoub, Chrismawan Ardianto, Khang Wen Goh Authors

Author #1 Rami Ayoub

Affiliation	1. Department of Applied Pharmaceutical Sciences and Clinical Pharmacy, Faculty of Pharmacy, Isra University, Amman 11622, Jordan
E-Mail	rami.ayoub@iu.edu.jo (corresponding author email)
Author #2	Jamal Jilani
Affiliation	Department of Medicinal Chemistry and Pharmacognosy, Faculty of Pharmacy, Jordan University of Science and Technology, Irbid 22110, Jordan
E-Mail	jilanij@just.edu.jo (co-author email has been published))
Author #3	Qais Jarrar
Affiliation	1. Department of Applied Pharmaceutical Sciences and Clinical Pharmacy, Faculty of Pharmacy, Isra University, Amman 11622, Jordan
E-Mail	qais.jarrar@iu.edu.jo (co-author email has been published))
Author #4	Raad Alani
Affiliation	 Department of Physiotherapy, Faculty of Allied Medical Sciences, Isra University, Amman 11622, Jordan
E-Mail	raad.alani@iu.edu.jo <mark>(co-author email has been published)</mark>)
Author #5	Chrismawan Ardianto (🎁 s://orcid.org/0000-0003-3713-7900)
Affiliation	4. Department of Pharmacy Practice, Faculty of Pharmacy, Universitas Airlangga, Surabaya 60115, Indonesia
E-Mail	chrismawan-a@ff.unair.ac.id (corresponding author email)
Author #6	Khang Wen Goh
Affiliation	5. Faculty of Data Science and Information Technology, INTI International University, Nilai 71800, Malaysia
E-Mail	khangwen.goh@newinti.edu.my (corresponding author email)
Author #7	Dalia Ali (/i͡ps://orcid.org/0000-0001-9680-0026)
Affiliation	 Department of Physiotherapy, Faculty of Allied Medical Sciences, Isra University, Amman 11622, Jordan
E-Mail	dalia.ali@iu.edu.jo <mark>(co-author email has been published)</mark>)
Author #8	Said Moshawih (hps://orcid.org/0000-0003-4840-0460)
Affiliation	6. PAP Rashidah Sa'adatul Bolkiah Institute of Health Sciences, Universiti Brunei Darussalam, Gadong BE1410, Brunei
E-Mail	saeedmomo@hotmail.com (co-author email has been published))

Manuscript Information

Received Date	11 March 2022
Revised Date	3 May 2022
Accepted Date	5 May 2022
Published Date	8 May 2022
Submission to First Decision (Days)	51
Submission to Publication (Days)	57
Round of Revision	3
Size of PDF	2949 KiB
Word Count	3549
Page Count	12
Figure Count	5
Table Count	1
Reference Count	38

Editor Decision

Decision	Accept after minor revision
Comments	The authors should correct the molecular formula of both compounds in page#9 including one hydrogen because is [M+H]+: where says "C16H12CINO3 [M+H]+" should say "C16H13CINO3 [M+H]+" where says "C15H10CINO3 [M+H]+" should say "C15H11CINO3 [M+H]+"
Decision Date	4 May 2022

- Reviewer 1 Review Report (Round 1) (/user/manuscripts/review/25360784?report=18383722) Review Report (Round 2) (/user/manuscripts/review/25360784?report=19279311)
- Reviewer 2 Review Report (Round 1) (/user/manuscripts/review/25506214?report=18511677) Review Report (Round 2) (/user/manuscripts/review/25506214?report=19279318)

APC information

Journal APC:	2,300.00 CHF
Discount Voucher:	47e8613cebd684e6 (400.00 CHF) (longchiauming@gmail.com)
Total Payment Amount:	1,900.00 CHF

Previously Published Papers

Khotib, J.; Gani, M.A.; Budiatin, A.S.; Lestari, M.L.A.D.; Rahadiansyah, E.; Ardianto, C. Signaling Pathway and Transcriptional Regulation in Osteoblasts during Bone Healing: Direct Involvement of Hydroxyapatite as a Biomaterial. *Pharmaceuticals* **2021**, *14*, 615. doi: 10.3390/ph14070615 (https://doi.org/10.3390/ph14070615)

Gani, M.A.; Budiatin, A.S.; Lestari, M.L.A.D.; Rantam, F.A.; Ardianto, C.; Khotib, J. Fabrication and Characterization of Submicron-Scale Bovine Hydroxyapatite: A Top-Down Approach for a Natural Biomaterial. *Materials* **2022**, *15*, 2324. doi: 10.3390/ma15062324 (https://doi.org/10.3390/ma15062324)

Khirfan, F.; Jarrar, Y.; Al-Qirim, T.; Goh, K.W.; Jarrar, Q.; Ardianto, C.; Awad, M.; Al-Ameer, H.J.; Al-Awaida, W.; Moshawih, S.; Ming, L.C. Analgesics Induce Alterations in the Expression of SARS-CoV-2 Entry and Arachidonic-Acid-Metabolizing Genes in the Mouse Lungs. *Pharmaceuticals* **2022**, *15*, 696. doi: 10.3390/ph15060696 (https://doi.org/10.3390/ph15060696)

Moshawih, S.; Lim, A.F.; Ardianto, C.; Goh, K.W.; Kifli, N.; Goh, H.P.; Jarrar, Q.; Ming, L.C. Target-Based Small Molecule Drug Discovery for Colorectal Cancer: A Review of Molecular Pathways and In Silico Studies. *Biomolecules* **2022**, *12*, 878. doi: 10.3390/biom12070878 (https://doi.org/10.3390/biom12070878)

Lai, N.J.-Y.; Ngu, E.-L.; Pang, J.-R.; Wong, K.-H.; Ardianto, C.; Ming, L.C.; Lim, S.-H.; Walvekar, S.G.; Anwar, A.; Yow, Y.-Y. Carrageenophyte *Kappaphycus malesianus* Inhibits Microglia-Mediated Neuroinflammation via Suppression of AKT/NF-*k*B and ERK Signaling Pathways. *Mar. Drugs* **2022**, *20*, 534. doi: 10.3390/md20080534 (https://doi.org/10.3390/md20080534)

Ramayanam, N.R.; Manickam, R.; Mahalingam, V.T.; Goh, K.W.; Ardianto, C.; Ganesan, P.; Ming, L.C.; Ganesan, R.M. Functional and Structural Impact of Deleterious Missense Single Nucleotide Polymorphisms in the NR3C1, CYP3A5, and TNF-α Genes: An In Silico Analysis. *Biomolecules* **2022**, *12*, 1307. doi: 10.3390/biom12091307 (https://doi.org/10.3390/biom12091307)

Ling, S.P.; Ming, L.C.; Dhaliwal, J.S.; Gupta, M.; Ardianto, C.; Goh, K.W.; Hussain, Z.; Shafqat, N. Role of Immunotherapy in the Treatment of Cancer: A Systematic Review. *Cancers* **2022**, *14*, 5205. doi: 10.3390/cancers14215205 (https://doi.org/10.3390/cancers14215205)

Budiatin, A.S.; Khotib, J.; Samirah, S.; Ardianto, C.; Gani, M.A.; Putri, B.R.K.H.; Arofik, H.; Sadiwa, R.N.; Lestari, I.; Pratama, Y.A.; Rahadiansyah, E.; Susilo, I. Acceleration of Bone Fracture Healing through the Use of Bovine Hydroxyapatite or Calcium Lactate Oral and Implant Bovine Hydroxyapatite–Gelatin on Bone Defect Animal Model. *Polymers* **2022**, *14*, 4812. doi: 10.3390/polym14224812 (https://doi.org/10.3390/polym14224812)

Jarrar, Q.; Ayoub, R.; Alhussine, K.; Goh, K.W.; Moshawih, S.; Ardianto, C.; Goh, B.H.; Ming, L.C. Prolonged Maternal Separation Reduces Anxiety State and Increases Compulsive Burying Activity in the Offspring of BALB/c Mice. *J. Pers. Med.* **2022**, *12*, 1921. doi: 10.3390/jpm12111921 (https://doi.org/10.3390/jpm12111921)

Khan, F.B.; Uddin, S.; Elderdery, A.Y.; Goh, K.W.; Ming, L.C.; Ardianto, C.; Palakot, A.R.; Anwar, I.; Khan, M.; Owais, M.; Huang, C.-Y.; Daddam, J.R.; Khan, M.A.; Shoaib, S.; Khursheed, M.; Reshadat, S.; Khayat Kashani, H.R.; Mirza, S.; Khaleel, A.A.; Ayoub, M.A. Illuminating the Molecular Intricacies of Exosomes and ncRNAs in Cardiovascular Diseases: Prospective Therapeutic and Biomarker Potential. *Cells* **2022**, *11*, 3664. doi: 10.3390/cells11223664 (https://doi.org/10.3390/cells11223664)

Khan, F.B.; Singh, P.; Jamous, Y.F.; Ali, S.A.; Abdullah; Uddin, S.; Zia, Q.; Jena, M.K.; Khan, M.; Owais, M.; Huang, C.Y.; Chanukuppa, V.; Ardianto, C.; Ming, L.C.; Alam, W.; Khan, H.; Ayoub, M.A. Multifaceted Pharmacological Potentials of Curcumin, Genistein, and Tanshinone IIA through Proteomic Approaches: An In-Depth Review. *Cancers* **2023**, *15*, 249. doi: 10.3390/cancers15010249 (https://doi.org/10.3390/cancers15010249)

Related Papers Published in MDPI Journals

Asad, M.I.; Khan, D.; Rehman, A.U.; Elaissari, A.; Ahmed, N. Development and In Vitro/In Vivo Evaluation of pH-Sensitive Polymeric Nanoparticles Loaded Hydrogel for the Management of Psoriasis. *Nanomaterials* **2021**, *11*, 3433. doi: 10.3390/nano11123433 (https://doi.org/10.3390/nano11123433)

Kocsis, D.; Horváth, S.; Kemény, Á.; Varga-Medveczky, Z.; Pongor, C.; Molnár, R.; Mihály, A.; Farkas, D.; Naszlady, B.M.; Fülöp, A.; Horváth, A.; Rózsa, B.; Pintér, E.; Gyulai, R.; Erdő, F. Drug Delivery through the Psoriatic Epidermal Barrier—A "Skin-On-A-Chip" Permeability Study and Ex Vivo Optical Imaging. *Int. J. Mol. Sci.* **2022**, *23*, 4237. doi: 10.3390/ijms23084237 (https://doi.org/10.3390/ijms23084237)

If you have any questions or concerns, please do not hesitate to contact molecules@mdpi.com (mailto: molecules@mdpi.com).



_

Journals (https://www.mdpi.com/about/journals/) Topics (https://www.mdpi.com/topics) Information (https://www.mdpi.com/guidelines)

Author Services (https://www.mdpi.com/authors/english) Initiatives

About (https://www.mdpi.com/about)

∨User Menu 🛛 😧		
Home (/user/myprofile)	Journal	Molecules (https://www.mdpi.com/journal/molecules) (ISSN 1420-3049)
Manage Accounts	Manuscript ID	molecules-1655347
(/user/manage_accounts)	Туре	Article
Change Password (/user/chgpwd)	Title	Synthesis and In-vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs (https://www.mdpi.com/1420-3049/27/9/3023)
Edit Profile (/user/edit)	Authors	Rami Ayoub * , Jamal Jilani , Qais Jarrar , Raad Alani , Chrismawan Ardianto * , Khang Wen
Logout (/user/logout)		Goh * , Dalia Ali , Said Moshawih
	Section	Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry)
✓ Submissions Menu ②	Special Issue	Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health)
Submit Manuscript (/user/manuscripts/upload)	Abstract	Benzoxazole derivatives are aromatic nitrogen compounds possessing a variety of pharmacological properties, including analgesic, anti-inflammatory, and immunosuppressive.
Display Submitted Manuscripts (/user/manuscripts/status)		However, anti-psoriatic effects of these compounds have not been yet investigated. In this study, novel benzoxazole derivatives, including 2-(2-(4-chlorophenyl) benzoxazol-5-yl) acetic acid (CBA) and its ester, methyl 2-(2-(4-chlorophenyl) benzoxazol-5-yl) acetate (MCBA) were
Display Co-Authored Manuscripts (/user/manuscripts/co- authored)		synthesized, and their anti-psoriatic effects in mice were evaluated. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis was scored by calculating Psoriasis Area Severity Index (PASI). The study also included the determination of
English Editing (/user/pre_english_article/status)		histopathological alterations on the skin tissues of treated mice. Topical and oral administration of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease of PASI values. In addition, skin tissues of mice
Discount Vouchers (/user/discount_voucher)		treated with CBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriasiform, and hyperplasia. After
Invoices (/user/invoices)		administration of either topical or oral dosing, the anti-psoriatic effects were found to be stronger in MCBA-treated than in CBA-treated mice. These effects were comparable to that produced by
LaTex Word Count (/user/get/latex_word_count)		Clobetasol propionate (Clob), the reference drug. CBA and MCBA may be promising drugs for treating psoriasis disorders. However, more research is needed to support these results.
✓ Reviewers Menu		The coverletter for this review report has been saved in the database. You can safely close

Reviews

(/user/reviewer/status)

Volunteer Preferences

(/volunteer_reviewer_info/view) Authors' Responses to Reviewer's Comments (Reviewer 1)

Author's Notes Dear reviwer,

this window.

" Synthesis and In-vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs ".

Manuscript ID: molecules-1655347

Thank you for your email of March 29, 2022 informing me that the above manuscript needs revisions. We (the authors) did revise the manuscript according to the reviewer comments. Herein our response to the Reviewers comments:

Reviewer A - Comments

Comment 1: The abstract should be shortened (max 200 words, see rules of journal).

The answer: Thank you for your comment. We have revised the abstract as suggested. (Line 18-31)

Comment 2: The choice of a chemical route for the preparation of two benzoxazole derivatives should be explained based on an analysis of the relevant references and presented in the "Discussion" section.

The answer: This is an excellent suggestion. The chemical route for the preparation of two benzoxazole derivatives are included in the "Discussion" section in the revised manuscript. (Line 128-163)

Comment 3: A description of the synthesis of two benzoxazole derivatives should also be presented at the beginning of the "Results" section.

The answer: Yes, we agree with you. A description of the synthesis of two benzoxazole derivatives are included at the "Results" section in the revised manuscript. (Line 68-79)

Comment 4: CBA is known compound (Journal of Medicinal Chemistry (1975), 18(1), 53-8; DE2324443 A1 1973; DE2449990 A1 1975; Synthetic Communications (1985), 15(12), 1075-80) and the relevant references should be added and discussed in the "Discussion" section.

The answer: Thank you for your comment. You can refer to the corrected part as indicated. (Line 135)

Comment 5: Authors should once again carefully check the references in accordance with the examples reference style.

The answer: We appreciate your kind suggestion. All references have been crossed checked now.

Review Report Form

Quality of English Language () English very difficult to understand/incomprehensible

- () Extensive editing of English language and style required
- () Moderate English changes required
- () English language and style are fine/minor spell check required
- (x) I am not qualified to assess the quality of English in this paper

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	()	()	(x)	()
Is the research design appropriate?	()	()	(x)	()
Are the methods adequately described?	()	(x)	()	()
Are the results clearly presented?	()	(x)	()	()
Are the conclusions supported by the results?	()	(x)	()	()

Comments and Suggestions for Authors

The manuscript entitled "Synthesis and In-vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs" by Rami Ayoub et al. described an approach for the synthesis of two benzoxazole derivatives and study their anti-psoriatic activity. The manuscript may be of general interest to the researchers of this field, but the manuscript lacks some information that the author should consider and incorporate in the present form of the manuscript. Here are a few concerns that need to be addressed in the present form of the manuscript.

- 1. The abstract should be shortened (max 200 words, see rules of journal).
- The choice of a chemical route for the preparation of two benzoxazole derivatives should be explained based on an analysis of the relevant references and presented in the "Discussion" section.
- A description of the synthesis of two benzoxazole derivatives should also be presented at the beginning of the "Results" section.
- CBA is known compound (Journal of Medicinal Chemistry (1975), 18(1), 53-8; DE2324443 A1 1973; DE2449990 A1 1975; Synthetic Communications (1985), 15(12), 1075-80) and the relevant references should be added and discussed in the "Discussion" section.
- Authors should once again carefully check the references in accordance with the examples reference style.

Submission Date 11 March 2022

Date of this review 14 Mar 2022 12:26:21

© 1996-2023 MDPI (Basel, Switzerland) unless otherwise stated

Disclaimer Terms and Conditions (https://www.mdpi.com/about/terms-andconditions) Privacy Policy (https://www.mdpi.com/about/privacy)



Journals (https://www.mdpi.com/about/journals/) Topics (https://www.mdpi.com/topics) Information (https://www.mdpi.com/guidelines)

Author Services (https://www.mdpi.com/authors/english) Initiatives About (https://www.mdpi.com/about)

Home (/user/myprofile)	Journal	Molecules (https://www.mdpi.com/journal/molecules) (ISSN 1420-3049)
Manage Accounts	Manuscript ID	molecules-1655347
(/user/manage_accounts)	Туре	Article
Change Password (/user/chgpwd)	Title	Synthesis and In-vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs (https://www.mdpi.com/1420-3049/27/9/3023)
Edit Profile (/user/edit)	Authors	Rami Ayoub * , Jamal Jilani , Qais Jarrar , Raad Alani , Chrismawan Ardianto * , Khang Wen
Logout (/user/logout)		Goh * , Dalia Ali , Said Moshawih
	Section	Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry)
Submissions Menu	Special Issue	Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health)
Submit Manuscript (/user/manuscripts/upload)	Abstract	Benzoxazole derivatives are aromatic nitrogen compounds possessing a variety of pharmacological properties, including analgesic, anti-inflammatory, and immunosuppressive.
Display Submitted Manuscripts (/user/manuscripts/status)		However, anti-psoriatic effects of these compounds have not been yet investigated. In this study novel benzoxazole derivatives, including 2-(2-(4-chlorophenyl) benzoxazol-5-yl) acetic acid (CBA) and its ester, methyl 2-(2-(4-chlorophenyl) benzoxazol-5-yl) acetate (MCBA) were
Display Co-Authored Manuscripts (/user/manuscripts/co-		synthesized, and their anti-psoriatic effects in mice were evaluated. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis was scored by calculating
authored)		Psoriasis Area Severity Index (PASI). The study also included the determination of
English Editing (/user/pre_english_article/status)		histopathological alterations on the skin tissues of treated mice. Topical and oral administration of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease of PASI values. In addition, skin tissues of mice
Discount Vouchers (/user/discount_voucher)		treated with CBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriasiform, and hyperplasia. After
Invoices (/user/invoices)		administration of either topical or oral dosing, the anti-psoriatic effects were found to be stronger in MCBA-treated than in CBA-treated mice. These effects were comparable to that produced by
LaTex Word Count		Clobetasol propionate (Clob), the reference drug. CBA and MCBA may be promising drugs for treating psoriasis disorders. However, more research is needed to support these results.

The coverletter for this review report has been saved in the database. You can safely close this window.

(/user/reviewer/status)

Reviews

Volunteer Preferences

(/volunteer_reviewer_info/view) Authors' Responses to Reviewer's Comments (Reviewer 1)

Author's Notes Dear Reviewer,

Thank you for your endorsement of our revised manuscript. Much appreciation.

Review Report Form

Quality of English

Language

- () English very difficult to understand/incomprehensible
 - () Extensive editing of English language and style required

() Moderate English changes required

- () English language and style are fine/minor spell check required
- (x) I am not qualified to assess the quality of English in this paper

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	()	(x)	()	()
Are all the cited references relevant to the research?	()	(x)	()	()
Is the research design appropriate?	()	(x)	()	()
Are the methods adequately described?	()	(x)	()	()
Are the results clearly presented?	()	(x)	()	()
Are the conclusions supported by the results?	()	(x)	()	()

Comments and Dear colleagues, Suggestions for

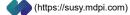
Authors

Date of this review 27 Apr 2022 15:21:10

© 1996-2023 MDPI (Basel, Switzerland) unless otherwise stated

Disclaimer Terms and Conditions (https://www.mdpi.com/about/terms-andconditions) Privacy Policy (https://www.mdpi.com/about/privacy)

V



Journals (https://www.mdpi.com/about/journals/) Topics (https://www.mdpi.com/topics) Information (https://www.mdpi.com/guidelines)

Author Services (https://www.mdpi.com/authors/english) Initiatives

About (https://www.mdpi.com/about)

∨User Menu 🛛 🚱		
Home (/user/myprofile)	Journal	Molecules (https://www.mdpi.com/journal/molecules) (ISSN 1420-3049)
Manage Accounts	Manuscript ID	molecules-1655347
(/user/manage_accounts)	Туре	Article
Change Password (/user/chgpwd)	Title	Synthesis and In-vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs (https://www.mdpi.com/1420-3049/27/9/3023)
Edit Profile (/user/edit)	Authors	Rami Ayoub * , Jamal Jilani , Qais Jarrar , Raad Alani , Chrismawan Ardianto * , Khang Wen
Logout (/user/logout)		Goh * , Dalia Ali , Said Moshawih
	Section	Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry)
✓ Submissions Menu ♀	Special Issue	Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health)
Submit Manuscript (/user/manuscripts/upload)	Abstract	Benzoxazole derivatives are aromatic nitrogen compounds possessing a variety of pharmacological properties, including analgesic, anti-inflammatory, and immunosuppressive.
Display Submitted		However, anti-psoriatic effects of these compounds have not been yet investigated. In this study,
Manuscripts		novel benzoxazole derivatives, including 2-(2-(4-chlorophenyl) benzoxazol-5-yl) acetic acid (CBA) and its ester, methyl 2-(2-(4-chlorophenyl) benzoxazol-5-yl) acetate (MCBA) were
(/user/manuscripts/status)		synthesized, and their anti-psoriatic effects in mice were evaluated. The anti-psoriatic activities
Display Co-Authored Manuscripts		of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model in
(/user/manuscripts/co-		which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis was scored by calculating
authored)		Psoriasis Area Severity Index (PASI). The study also included the determination of
English Editing		histopathological alterations on the skin tissues of treated mice. Topical and oral administration
(/user/pre_english_article/status)		of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease of PASI values. In addition, skin tissues of mice
Discount Vouchers		treated with CBA and MCBA showed less evidence of psoriatic alterations, such as
(/user/discount_voucher)		hyperkeratosis, parakeratosis, scale crust, edema, psoriasiform, and hyperplasia. After
Invoices (/user/invoices)		administration of either topical or oral dosing, the anti-psoriatic effects were found to be stronger in MCBA-treated than in CBA-treated mice. These effects were comparable to that produced by
LaTex Word Count (/user/get/latex_word_count)		Clobetasol propionate (Clob), the reference drug. CBA and MCBA may be promising drugs for treating psoriasis disorders. However, more research is needed to support these results.
∼Reviewers Menu		The coverletter for this review report has been saved in the database. You can safely close this window.
Reviews		
(/user/reviewer/status)		

Volunteer Preferences

(/volunteer_reviewer_info/view) Authors' Responses to Reviewer's Comments (Reviewer 2)

Author's Notes Dear Editor,

" Synthesis and In-vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs ".

Manuscript ID: molecules-1655347

Thank you for your email of March 29, 2022 informing me that the above manuscript needs revisions. We (the authors) did revise the manuscript according to the reviewer comments. Herein our response to the Reviewers comments:

Reviewer B- Comments

Comment 1: The English language needs revising. The compounds characterization is very poor and needs more solid evidence

The Answer: We appreciate your kind suggestion. The English language was revised, and the compounds characterization was discussed in details in the revised manuscript.

Comment 2: Row 43 references should be expressed as [2, 3] instead of [2], [3]

The Answer: Thank you for your suggestion. We have revised it now. (Line 39)

Comment 3: Row 55 references the same -> [10-12]

The Answer: Thank you for your suggestion. We have revised it now. (Line 51)

Comment 4: Row 57 references [3, 13, 14]

The answer: Thank you for your suggestion. We have revised it now. (Line 53)

Comment 5: Row 62 remove the bracket before the reference

The answer: The bracket was removed as seen in the revised manuscript. Thank you for pointing it out (Line 57)

Comment 6: Row 124 [24], [25] -> [24, 25]

The answer: Thank you for your suggestion. We have revised it now. (Line 135)

Comment 7: Row 180 please correct 1H to ¹H (superscript)

The answer: It was corrected accordingly. Thank you (Line 220)

Comment 8: Row 184 Please give the full name of the compound and then give in brackets the abbreviation - methyl 2-(2-(4-chlorophenyl)benzo[d]oxazol-5-yl)acetate (MCBA)

The answer: Thank you for your suggestion. We have revised it now. (Line 224)

Comment 9: Row 185-196 Please make sure you correct all numbers in the molecular formulas to subscript and superscript where necessary.

The answer: The numbers of molecular formulas were corrected in the revise manuscript. Thank you for your suggestions (Line 225-236)

Comment 10: ¹H NMR is not described correctly. Please give the frequency at which the spectrum is recorded, next to the solvent used. In addition, the J constant is missing. Moreover, the aromatic protons are seven at the structure, but eight in the description. Could you please explain this extra proton?

The answer: Excellent points. The frequency and J constant are included in the revised manuscript. In addition, the description of aromatic protons was corrected. (Line 234-236)

Comment 11: The information for the MS analysis is missing in general. What apparatus? What source of ionization? The MS result is not accurate enough. See example: HR-MS ESI: calc. for $[C_{22}H_{16}N_4 + H]^+$ 337.14477, found 337.14436. Then calculate the mass error in ppm.

The answer: The missing data are included in revised manuscript and MS results are presented with more details in the revised manuscript as indicated by the reviewer. We are grateful for your comments (Line 236)

Comment 12: In Figure 4 please add the reaction conditions, and rename the title as Synthesis of MCBA

The answer: The reaction conditions were added in Figure 4 and the title was renamed as indicated. (Please see scheme 1) (Line 74)

Comment 13: Row 200 Please give the full name of the synthesized compound: 2-(2-(4-chlorophenyl)benzo[d]oxazol-5-yl)acetic acid (CBA)

The answer: Thank you for your suggestion. We have revised it now. (Line 237)

Comment 14: Row 201-209 Please make sure you correct all numbers in the molecular formulas to subscript and superscript where necessary.

The answer: Thank you. All numbers in the molecular formulas were corrected as seen as revised manuscript. (Line 238-247)

Comment 15: ¹H NMR is not described correctly. Its looks like a mess. Please check the journal requirements for NMR interpretation and correct them. Please give the frequency at which the spectrum is recorded, next to the solvent used. In addition, the J constants are missing again. Also, three of the protons are missing. Your product has 10 hydrogen atoms and only seven are described.

The answer: The frequency and J constant are included in the revised manuscript. In addition, the description of aromatic protons was corrected. Thank you for the kind comment. (Line 224-246)

Comment 16: The MS here is the same: please see the upper comment for the MS analysis.

The answer Thank you for the kind comment.: The missing information for the MS analysis of CBA are included in revised manuscript and MS results are presented with more details as indicated by the reviewer. (Line 246)

Comment 17: The IR also needs clarification. Please check on the journal's recommendations for IR interpretation and presenting.

The answer: Thank you for the kind comment.FTIR analysis are clarified in the revised manuscript. (Line 233, 243, 244)

Comment 18: In figure 5 please change the title: Synthesis of CBA

The answer: The title of Figure 5 was renamed as seen in the revised manuscript. (Please see scheme 2) Thank you for the kind comment. (Line 79)

Review Report Form

Quality of English Language () English very difficult to understand/incomprehensible

- () Extensive editing of English language and style required
- (x) Moderate English changes required
- () English language and style are fine/minor spell check required
- () I am not qualified to assess the quality of English in this paper

	Yes	Can be improved	Must be improved	Not applicable
Does the introduction provide sufficient background and include all relevant references?	()	(x)	()	()
Is the research design appropriate?	()	(x)	()	()
Are the methods adequately described?	()	()	(x)	()
Are the results clearly presented?	()	()	(x)	()
Are the conclusions supported by the results?	()	(x)	()	()

Comments and Suggestions for Authors The presented manuscript "Synthesis and In-vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs" describes the in vivo results of two known compounds obtained, using old and known procedures, but are interesting in order to be found new psoriatic drugs for psoriasis treatment.

The English language needs revising. The compounds characterization is very poor and needs more solid evidence.

The manuscript needs major revision.

Here are some comments and suggestions that need to be taken into account:

Row 43 references should be expressed as [2, 3] instead of [2], [3]

Row 55 references the same -> [10-12]

Row 57 references [3, 13, 14]

Row 62 remove the bracket before the reference

Row 124 [24], [25] -> [24, 25]

Row 180 please correct 1H to ¹H (superscript)

Row 184 Please give the full name of the compound and then give in brackets the abbreviation - methyl 2-(2-(4-chlorophenyl)benzo[d]oxazol-5-yl)acetate (MCBA)

Row 185-196 Please make sure you correct all numbers in the molecular formulas to subscript and superscript where necessary.

¹H NMR is not described correctly. Please give the frequency at which the spectrum is recorded, next to the solvent used. In addition, the J constant is missing. Moreover, the aromatic protons are seven at the structure, but eight in the description. Could you please explain this extra proton?

The information for the MS analysis is missing in general. What apparatus? What source of ionization? The MS result is not accurate enough. See example: HR-MS ESI: calc. for $[C_{22}H_{16}N_4 + H]^+$ 337.14477, found 337.14436. Then calculate the mass error in ppm.

In Figure 4 please add the reaction conditions, and rename the title as Synthesis of MCBA

Row 200 Please give the full name of the synthesized compound: 2-(2-(4chlorophenyl)benzo[d]oxazol-5-yl)acetic acid (CBA)

Row 201-209 Please make sure you correct all numbers in the molecular formulas to subscript and superscript where necessary.

¹H NMR is not described correctly. Its looks like a mess. Please check the journal requirements for NMR interpretation and correct them. Please give the frequency at which the spectrum is recorded, next to the solvent used. In addition, the J constants are missing again...Also three of the protons are missing. Your product has 10 hydrogen atoms and only seven are described.

The MS here is the same: please see the upper comment for the MS analysis.

The IR also needs clarification. Please check on the journal's recommendations for IR interpretation and presenting.

In figure 5 please change the title: Synthesis of CBA

Submission Date 11 March 2022

Date of this review 26 Mar 2022 13:04:06

© 1996-2023 MDPI (Basel, Switzerland) unless otherwise stated

Disclaimer Terms and Conditions (https://www.mdpi.com/about/terms-andconditions) Privacy Policy (https://www.mdpi.com/about/privacy)



Journals (https://www.mdpi.com/about/journals/) Topics (https://www.mdpi.com/topics) Information (https://www.mdpi.com/guidelines)

About (https://www.mdpi.com/about) Author Services (https://www.mdpi.com/authors/english) Initiatives

Home (/user/myprofile)	Journal	Molecules (https://www.mdpi.com/journal/molecules) (ISSN 1420-3049)
Manage Accounts	Manuscript ID	molecules-1655347
(/user/manage_accounts)	Туре	Article
Change Password (/user/chgpwd)	Title	Synthesis and In-vivo Evaluation of Benzoxazole Derivatives as Promising Anti-Psoriatic Drugs (https://www.mdpi.com/1420-3049/27/9/3023)
Edit Profile (/user/edit)	Authors	Rami Ayoub * , Jamal Jilani , Qais Jarrar , Raad Alani , Chrismawan Ardianto * , Khang Wen
Logout (/user/logout)		Goh * , Dalia Ali , Said Moshawih
	Section	Medicinal Chemistry (https://www.mdpi.com/journal/molecules/sections/medicinal_chemistry)
Submissions Menu 🛛	Special Issue	Biofunctional Molecule Exploratory Research on Application in Food and Health (https://www.mdpi.com/journal/molecules/special_issues/Bio_food_health)
Submit Manuscript (/user/manuscripts/upload)	Abstract	Benzoxazole derivatives are aromatic nitrogen compounds possessing a variety of
Display Submitted Manuscripts (/user/manuscripts/status) Display Co-Authored Manuscripts (/user/manuscripts/co- authored) English Editing (/user/pre_english_article/status) Discount Vouchers (/user/discount_voucher) Invoices (/user/invoices) LaTex Word Count		pharmacological properties, including analgesic, anti-inflammatory, and immunosuppressive. However, anti-psoriatic effects of these compounds have not been yet investigated. In this study, novel benzoxazole derivatives, including 2-(2-(4-chlorophenyl) benzoxazol-5-yl) acetic acid (CBA) and its ester, methyl 2-(2-(4-chlorophenyl) benzoxazol-5-yl) acetic acid (CBA) and its ester, methyl 2-(2-(4-chlorophenyl) benzoxazol-5-yl) acetate (MCBA) were synthesized, and their anti-psoriatic effects in mice were evaluated. The anti-psoriatic activities of CBA and MCBA were tested using an imiquimod (IMQ)-induced psoriatic mouse model in which mice were treated both topically (1% w/w) and orally (125 mg/kg) for 14 days. The erythema intensity, thickness, and desquamation of psoriasis was scored by calculating Psoriasis Area Severity Index (PASI). The study also included the determination of histopathological alterations on the skin tissues of treated mice. Topical and oral administration of CBA and MCBA led to a reduction in erythema intensity, thickness, and desquamation, which was demonstrated by a significant decrease of PASI values. In addition, skin tissues of mice treated with CBA and MCBA showed less evidence of psoriatic alterations, such as hyperkeratosis, parakeratosis, scale crust, edema, psoriasiform, and hyperplasia. After administration of either topical or oral dosing, the anti-psoriatic effects were found to be stronger in MCBA-treated than in CBA-treated mice. These effects were comparable to that produced by
(/user/get/latex_word_count)		Clobetasol propionate (Clob), the reference drug. CBA and MCBA may be promising drugs for treating psoriasis disorders. However, more research is needed to support these results. The coverletter for this review report has been saved in the database. You can safely close
(/user/get/latex_word_count) Reviewers Menu Reviews (/user/reviewer/status) Volunteer Preferences	uthors' Responses	treating psoriasis disorders. However, more research is needed to support these results.
(/user/get/latex_word_count) Reviewers Menu Reviews (/user/reviewer/status) Volunteer Preferences	uthors' Responses Author's Notes	treating psoriasis disorders. However, more research is needed to support these results. The coverletter for this review report has been saved in the database. You can safely close this window.
(/user/get/latex_word_count) Reviewers Menu Reviews (/user/reviewer/status) Volunteer Preferences		treating psoriasis disorders. However, more research is needed to support these results. The coverletter for this review report has been saved in the database. You can safely close this window. to Reviewer's Comments (Reviewer 2)
(/user/get/latex_word_count) Reviewers Menu Reviews (/user/reviewer/status) Volunteer Preferences		treating psoriasis disorders. However, more research is needed to support these results. The coverletter for this review report has been saved in the database. You can safely close this window. to Reviewer's Comments (Reviewer 2) Dear reviewer Pls see attached. Thank you so much for your suggestions, it really improved the standard of
(/user/get/latex_word_count) Reviewers Menu Reviews (/user/reviewer/status) Volunteer Preferences (/volunteer_reviewer_info/view) At		treating psoriasis disorders. However, more research is needed to support these results. The coverletter for this review report has been saved in the database. You can safely close this window. to Reviewer's Comments (Reviewer 2) Dear reviewer Pls see attached. Thank you so much for your suggestions, it really improved the standard of the paper.
(/user/get/latex_word_count) Reviewers Menu (/user/reviewer/status) Volunteer Preferences (/volunteer_reviewer_info/view)	Author's Notes	treating psoriasis disorders. However, more research is needed to support these results. The coverletter for this review report has been saved in the database. You can safely close this window. to Reviewer's Comments (Reviewer 2) Dear reviewer Pls see attached. Thank you so much for your suggestions, it really improved the standard of the paper. Appreciate it! Report Notes (/user/review/displayFile/25506214/VQ39WO4X?file=author-coverletter&report=19279318)
(/user/get/latex_word_count) Reviewers Menu (/user/reviewer/status) Volunteer Preferences (/volunteer_reviewer_info/view)	Author's Notes Author's Notes File	treating psoriasis disorders. However, more research is needed to support these results. The coverletter for this review report has been saved in the database. You can safely close this window. to Reviewer's Comments (Reviewer 2) Dear reviewer Pls see attached. Thank you so much for your suggestions, it really improved the standard of the paper. Appreciate it! Report Notes (/user/review/displayFile/25506214/VQ39WO4X?file=author-coverletter&report=19279318)

Are the conclusions supported by the results? (x) () () ()

Comments and Dear Authors, Suggestions for Authors thank you for t

s thank you for providing the revised version of your manuscript.

I have carefully examined your revised version and I see that you have taken into account all my suggestions.

Now your manuscript looks much better.

One thing I would like you to correct is the MS data for both compounds. As you give [M+H]+ result please write down the correct mass.

Also for the second compound (the acid), the molecular formula does not match the molecular weight (row 245). I suppose you copied the formula for the above and you didn't change it. Please correct the molecular formula.

Kind Regards,

Submission Date11 March 2022Date of this review26 Apr 2022 17:24:27

© 1996-2023 MDPI (Basel, Switzerland) unless otherwise stated

Disclaimer Terms and Conditions (https://www.mdpi.com/about/terms-andconditions) Privacy Policy (https://www.mdpi.com/about/privacy)