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**Research Article**

# ANTIOXIDANT POTENTIALS OF *PARAMIGNYA TRIMERA* LEAVES

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**ABSTRACT**

*Paramignya trimera or "XAO TAM PHAN," a traditional medicinal plant native to Vietnam, has been utilized in Asian countries for its therapeutic properties. The primary objective of this research was to isolate bioactive compounds from the leaves of P. trimera using a bio-guided routine based on antioxidant properties. The free radical DPPH scavenging activity of various extracts was evaluated, and the most active extract, extract EA, was selected for further chemical investigation. Three compounds, namely luteolin (**1**), scopoletin (**2**), and ostruthin (**3**), were isolated from the extract EA of Paramignya trimera leaves. The chemical structures of these compounds were elucidated by comparing their spectroscopic data with previously reported literature data. Upon the free radical DPPH scavenging activity, compound **2** exhibited strong activity with an $IC_{50}$ value of 7.1 μM.*

***Keywords*:** antioxidant; DPPH; luteolin; ostruthin; *Paramignya trimera*; scopoletin

## 1. Introduction

*Paramignya trimera* (Oliv.) Burkill (Rutaceae) is especially prevalent in Southern Vietnam, known for its therapeutic properties in treating hepatitis and liver cancer (Phi et al., 2020). It is noted that minor morphological differences between the genera *Paramignya* and *Luvunga*, and suggested that *P. trimera* may be placed within *Luvunga* (Phi et al., 2020). In Vietnam, however, this species is still widely known as *P. trimera* and commonly referred to as "Xao tam phan" (T. H. Tran et al., 2023). Phytochemical studies of *P. trimera* in Vietnam indicated the presence of bioactive phytochemicals. Recent reports of its stems and roots have found 22 coumarin-type compounds, 4r acridone-type alkaloids, and many known compounds (Dang et al., 2017; M. T. T. Nguyen et al., 2018; V. Nguyen & Scarlett, 2019; V. T. Nguyen et al., 2015; Quan et al., 2021; Trinh et al., 2020). Coumarins and alkaloids selectively induced apoptosis in human breast cancer stem cells (Quan et al., 2021; Piao et al., 2021; H. X. Nguyen et al., 2024) and modest alpha-glucosidase inhibition (Dang et al.,

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2017; M. T. T. Nguyen et al., 2018; Quan et al., 2021; Trinh et al., 2020). The discoveries of *P. trimera* leaves are limited. V. T. Nguyen et al. (2017) used microwave drying without isolation to study the antioxidant and anti-proliferative activities of *P. trimera* leaves. They found the total phenolic and flavonoid content, proanthocyanidin and saponin content, and isolated five compounds similar to those in the stems and roots. In addition, the essential oil from the leaves has been reported to contain 43 constituents (H. T. Nguyen et al., 2024; T. Nguyen et al., 2024; Le et al., 2020; Doan et al., 2019). Besides, five flavonoids and three apotirucallanes were isolated from leaves of *P. trimera* (Tran D. et al., 2023; T. H. Tran et al., 2023). Notably, leaf extracts were reported to contain higher total phenolic and flavonoid contents than extracts from other parts of the plant (H. T. Nguyen et al., 2024).

The primary objective of this research was to identify antioxidant compounds (Figure 1) through a bio-guided approach based on TPC, TFC, and DPPH scavening activity. This systematic investigation examined the antioxidant potentials of *P. trimera* leaves.

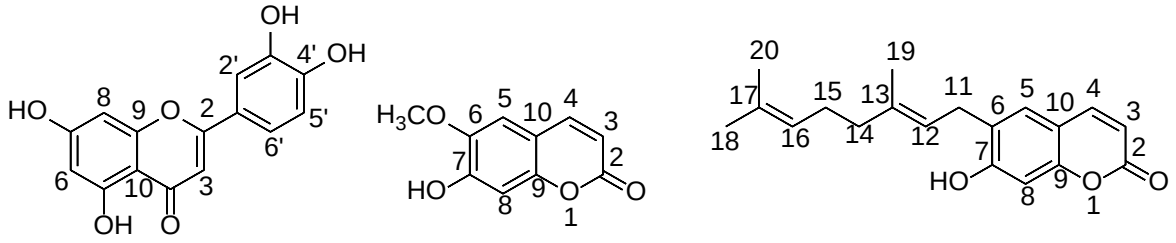
## 2. Experimental

### *2.1. Plant material*

Leaves of *Paramignya trimera* (Oliv.) Burkill were collected in June 2024 from Cu Chi District, Ho Chi Minh City, Vietnam. The plant material was identified by Associate Professor Van Son Dang (Ho Chi Minh City Institute of Tropical Biology). A voucher specimen (UE-P017A) was deposited in the herbarium of the Department of Organic Chemistry, Ho Chi Minh City University of Education.

### *2.2. Extraction and isolation*

Air-dried leaves of *P. trimera* (2.2 kg) were powdered and extracted with MeOH (3 × 12 L) at room temperature. The combined filtrates were concentrated under reduced pressure to afford a crude extract (390 g). This extract was suspended in water and successively partitioned with n-hexane and ethyl acetate to yield the n-hexane extract (H, 110 g), ethyl acetate extract (EA, 88 g), and water extract (W, 170 g). The isolation procedures for compounds **1**–**3** from the crude MeOH extract are summarized in Scheme 1.

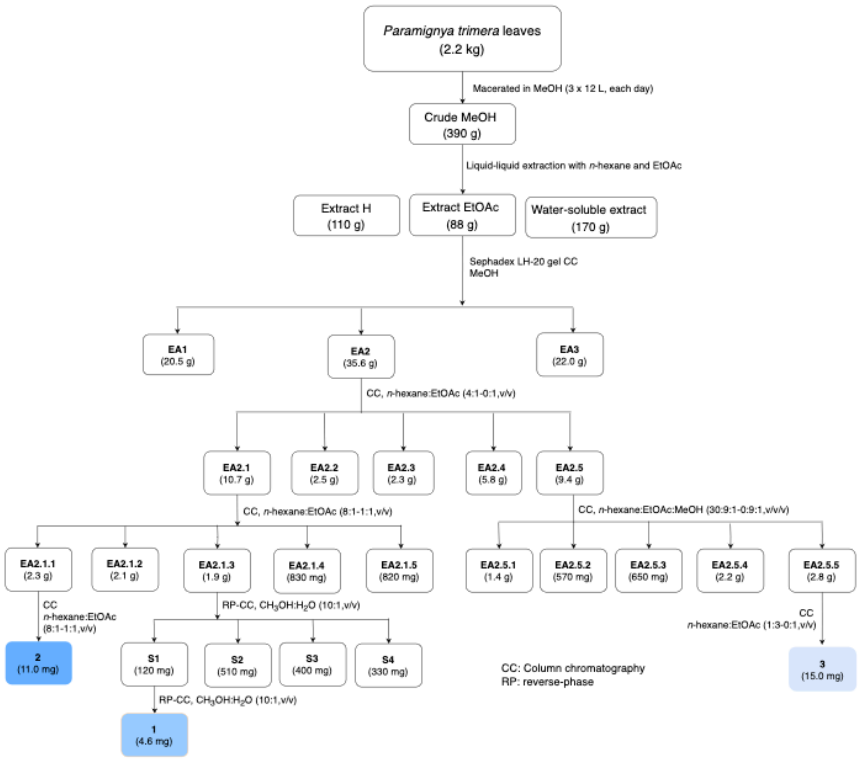



**(1)** **(2)** **(3)**

***Figure 1.*** *Chemical structures of isolated compounds **1-3***

- **Luteolin** (**1**). Light-yellow amorphous powder. $^1$H-NMR data $^1$H-NMR data (500 MHz, Acetone-$d_6$, $\delta_H$ ppm, $J$ in Hertz): 13.02 (1H, *s*, 5-OH), 6.58 (1H, *s*, H-3), 6.25 (1H, *d*, $J$ = 2.0 Hz, H-6), 6.52 (1H, *d*, $J$ = 2.0 Hz, H-8), 7.50 (1H, *d*, $J$ = 2.5 Hz, H-2'), 7.47 (1H, *dd*, $J$ = 2.5, 8.5 Hz, H-6'), 7.00 (1H, *d*, $J$ = 8.5 Hz, H-5'). The NMR data of **1** were consistent with the literature (Lin et al., 2015). ESI-MS: $[M+H]^+$ 287.05 (calcd. for $C_{15}H_{11}O_6$, 287.06).

- **Scopoletin** (**2**). Light-yellow amorphous powder. $^{1}$H-NMR data (500 MHz, Acetone-$d_6$, $\delta_H$ ppm, *J* in Hertz): 6.18 (1H, *d*, *J* = 9.5 Hz, H-3), 7.85 (1H, *d*, *J* = 9.5 Hz, H-4), 7.20 (1H, *s*, H-5), 6.80 (1H, *s*, H-8), 3.90 (3H, *s*, 6-OMe). $^{13}$C-NMR data (125 MHz, Acetone-$d_6$, $\delta_C$ ppm): 160.3 (C-2), 112.5 (C-3), 143.6 (C-4), 109.1 (C-5), 144.9 (C-6), 55.7 (6-OMe), 154.1 (C-7), 102.8 (C-8), 150.9 (C-9), 111.2 (C-10). The NMR data of **2** were consistent with the literature (Duong et al., 2024).
- **Ostruthin** (**3**). Yellow amorphous powder. $^{1}$H-NMR data (500 MHz, Acetone-$d_6$, $\delta_H$ ppm, *J* in Hertz): 6.12 (1H, *d*, *J* = 9.5 Hz, H-3), 7.79 (1H, *d*, *J* = 9.5 Hz, H-4), 7.30 (1H, *s*, H-5), 6.76 (1H, *s*, H-8), 3.34 (2H, *d*, *J* = 7.5 Hz, H-11), 5.36 (1H, *tq*, *J* = 7.5, 1.5 Hz, H-12), 2.12 (2H, *m*, H-14), 2.05 (2H, *m*, H-15), 5.10 (1H, *m*, H-16), 1.63 (3H, *s*, $H_3$-18), 1.71 (3H, *s*, $H_3$-19), 1.56 (3H, *s*, $H_3$-20), 9.57 (1H, *s*, 7-OH). $^{13}$C-NMR data (125 MHz, Acetone-$d_6$, $\delta_C$ ppm): 161.3 (C-2), 112.6 (C-3), 144.8 (C-4), 129.2 (C-5), 126.7 (C-6), 159.6 (C-7), 102.7 (C-8), 155.1 (C-9), 112.6 (C-10), 28.2 (C-11), 122.7 (C-12), 137.1 (C-13), 40.0 (C-14), 27.3 (C-15), 125.0 (C-16), 131.7 (C-17), 25.9 (C-18), 16.2 (C-19), 17.7 (C-20). The NMR data of **3** were consistent with the literature (Dương et al., 2016).




***Scheme 1.*** *Isolation procedure of compounds* ***1-3*** *from P. trimera leaves*

### *2.3. Total Phenolic Contents (TPCs)*

The analysis of TPC was conducted using a procedure with some modifications (Duong et al., 2024).

### *2.4. Total Flavonoid Contents (TFCs)*

The TFC in the *P. trimera* extracts were evaluated following $AlCl_3$ colourimetric method modified with some modifications (Duong et al., 2024).

### *2.5. DPPH free radical scavenging activity*

The free radical 1,1-diphenyl-2-picrylhydrazyl (DPPH) scavenging activity of extracts and compounds was evaluated according to (Duong et al., 2024).

## 3. Results and discussion

Compound **1** was obtained as a light-yellow amorphous powder. The $^{1}$H-NMR spectrum of **1** showed seven proton signals, including a hydrogen-bonded hydroxy group signal at $\delta_H$ 13.02 (1H, *s*, 5-OH), two *meta*-coupled protons at $\delta_H$ 6.25 (1H, *d*, *J* = 2.0 Hz, H-6), 6.52 (1H, *d*, *J* = 2.0 Hz, H-8), and an olefinic proton at $\delta_H$ 6.58 (1H, *s*, H-3). In addition, the $^{1}$H-NMR spectrum of **1** also showed a presence of a 1,2,4-trisubstituted aromatic ring [7.50 (1H, *d*, *J* = 2.5 Hz, H-2'), 7.47 (1H, *dd*, *J* = 2.5, 8.5 Hz, H-6'), 7.00 (1H, *d*, *J* = 8.5 Hz, H-5')]. A comprehensive comparison of $^{1}$H- and $^{13}$C- NMR data obtained from **1** and luteolin demonstrated the consistency of the results. Consequently, **1** was successfully elucidated as luteolin.

Compound **2** was obtained as a light-yellow amorphous powder. The $^{1}$H-NMR spectrum of **2** showed signals of methoxy group [$\delta_H$ 3.90 (3H, *s*, 6-OMe)]; two *singlet* aromatic protons [$\delta_H$ 6.80 (1H, *s*, H-8) and 7.20 (1H, *s*, H-5)] and two olefinic protons coupled to each other [$\delta_H$ 6.18 (1H, *d*, *J* = 9.5 Hz, H-3 and 7.85 (1H, *d*, *J* = 9.5 Hz, H-4)]. The $^{13}$C-NMR spectrum of **3** revealed signals for ten carbons, including a carboxyl ester carbon 160.3 (C-2), four methine carbons [112.5 (C-3), 143.6 (C-4), 109.1 (C-5), 102.8 (C-8)], four substituted aromatic carbons [144.9 (C-6), 154.1 (C-7), 150.9 (C-9), 111.2 (C-10)], and one methoxy carbon [$\delta_C$ 55.7 (6-OMe)]. A comprehensive comparison of $^{1}$H- and $^{13}$C-NMR data obtained from **2** and scopletin demonstrated the consistency of the results. Consequently, **2** was successfully elucidated as scopletin.

Compound **3** was obtained as a yellow amorphous powder. The $^{1}$H-NMR spectrum of **3** exhibited the presence of a phenolic group [$\delta_H$ 9.57 (s, 1H, 7-OH)], two singlet aromatic protons [$\delta_H$ 7.30 (1H, *s*, H-5) and 6.76 (1H, *s*, H-8)], and two olefinic protons coupled to each other [$\delta_H$ 6.12 (1H, *d*, *J* = 9.5 Hz, H-3 and 7.79 (1H, *d*, *J* = 9.5 Hz, H-4)]. These data were highly similar to those of **2**, indicating that **3** was a coumarin. A notable distinction between **2** and **3** was the alteration of substituents at carbon positions C-6 and C-7. A geranyl group was characterized by two triplet olefinic protons [$\delta_H$ 5.36 (1H, *t*, J = 7.5, 1.5 Hz, H-12), 5.10 (*m*, H-16)]; three methyls [$\delta_H$ 1.63 (3H, s, $H_3$-18), 1.71 (3H, s, $H_3$-19), 1.56 (3H, s, H3-20)]; three methylenes [$\delta_H$ 3.34 (*d*, *J* = 7.5 Hz, 2H, $H_2$-11), 2.12 (2H, m, $H_2$-14), $\delta_H$ 2.05 (2H, m, $H_2$-15)]. The $^{13}$C-NMR spectrum of **3** revealed signals for 19 carbons, including nine carbon signals of a coumarin unit [$\delta_C$ 161.3 (C-2), 112.6 (C-3), 144.8 (C-4), 129.2 (C-5), 126.7 (C-6), 159.6 (C-7), 102.7 (C-8), 155.1 (C-9), 112.6 (C-10)] and ten carbon signals of a geranyl group [$\delta_C$ 28.2 (C-11), 122.7 (C-12), 137.1 (C-13), 40.0 (C-14), 27.3 (C-15), 125.0 (C-16), 131.7 (C-17), 25.9 (C-18), 16.2 (C-19), 17.7 (C-20)]. A comprehensive comparison of NMR data obtained from **3** and ostruthin demonstrated the consistency of the results. Consequently, **3** was successfully elucidated as ostruthin.

The antioxidant potentials of extracts obtained from *P. trimera* leaves were assessed, including total phenolic content (TPCs), total flavonoid content (TFCs), and DPPH scavenging activity. As shown in Table 1, TPCs and TFCs of extract **EA** from *P. trimera*

are higher than those of extract **H** and the crude extract. The extract **EA** exhibited stronger DPPH scavenging activity, with an $IC_{50}$ value of 34.64 µg/mL. Thus, this extract was selected for chemical analysis. The aforementioned biological characteristics were consistent with those previously reported on *P. trimera* leaves. (V. T. Nguyen et al., 2015; Trinh et al., 2020). Compounds **2**-**3** were evaluated for the free radical DPPH scavenging activity. Compound **2** exhibited moderate activity with an $IC_{50}$ value of 7.1 µM, while compound **3** demonstrated no activity. These findings were consistent with those reported in the literature (Antika et al., 2022; V. T. Nguyen et al., 2015). Compound **1** was previously hypothesized to possess robust antioxidant properties (Gökbulut et al., 2012).

***Table 1.*** *Results of total phenolic Content (TPC), total flavonoid content (TFC), and free radical DPPH scavenging activity of P. trimera extracts/fractions*

| Extract | TPCs (mg GAE/g) | TFCs (mg QE/g) | DPPH $IC_{50}$ (µg/mL) |
|---|---|---|---|
| Crude MeOH extract | 32.35 ± 1.04 | 8.09 ± 0.10 | 49.50 ± 2.15 |
| Extract **H** | 20.70 ± 2.58 | 19.35 ± 0.89 | 34.72 ± 14.91 |
| Extract **EA** | 74.99 ± 2.03 | 73.95 ± 5.54 | 34.64 ± 5.57 |
| Fraction **EA1** | 52.55 ± 6.28 | 50.46 ± 6.67 | 5.58 ± 0.51 |
| Fraction **EA2** | 54.44 ± 6.72 | 50.43 ± 4.81 | 68.03 ± 23.37 |
| Fraction **EA3** | 33.09 ± 4.48 | 32.06 ± 1.33 | 34.58 ± 3.06 |
| | Ascorbic acid (positive control) | | 1.13 ± 0.21 |

## 4. Conclusions

From the leaves of *Paramignya trimera* collected in Ho Chi Minh City, three compounds, namely luteolin (**1**), scopoletin (**2**), and ostruthin (**3**), were isolated from the most active EA extract through a bioassay-guided procedure. Among them, scopoletin (**2**) showed notable DPPH radical-scavenging activity, with an $IC_{50}$ value of 7.1 µM. These findings indicate that the leaves of P. trimera are a promising source of natural antioxidant constituents and merit further phytochemical and biological investigation.

❖ ***Conflict of Interest:*** *Authors have no conflict of interest to declare.*

## REFERENCES

Antika, L. D., Tasfiyati, A. N., Hikmat, H., & Septama, A. W. (2022). Scopoletin: A review of its source, biosynthesis, methods of extraction, and pharmacological activities. *Zeitschrift Für Naturforschung C*, *77*(7–8), 303–316. https://doi.org/10.1515/znc-2021-0193

Dang, P. H., Le, T. H., Phan, P. K. T., Le, P. T. T., Nguyen, M. T. T., & Nguyen, N. T. (2017). Two acridones and two coumarins from the roots of *Paramignya trimera*. *Tetrahedron Letters*, *58*(16), 1553–1557. https://doi.org/10.1016/j.tetlet.2017.02.083

Doan, Q. T., Ho, V. D., Le, T. N., Le, T. A., Nguyen, T. H., & Ahn, R. (2019). Constituents of essential oils from the leaves of *Paramignya trimera* (Oliv.) Guillaum from Vietnam. *Natural Product Research*, *33*(3), 391–395. https://doi.org/10.1080/0972060X.2019.1582362

Duong, T. H., Phuong, T. T., Ly, H. D., Vy, N. T., Son, D. V., & Hoa, N. D. L. (2016). Coumarin và acridon alkaloid từ rễ cây Xáo tam phân. [Coumarins and acridone alkaloids from the roots of *Paramignya trimera*]. *VNU Journal of Science: Natural Sciences and Technology*, *32*(4), 115–123.

Duong, T.-H., Tran, T.-M.-D., To, P.-M., Phan, N.-H.-N., Nguyen, T.-P., Le, H. T., & Sichaem, J. (2024). Potential antioxidant compounds from the spores of *Dicranopteris linearis* and the branches of *Averrhoa bilimbi*. *Antioxidants*, *13*, 1319–1333.

Gökbulut, A., Satilmiş, B., Batçioğlu, K., ÇetiN, B., & Şarer, E. (2012). Antioxidant activity and luteolin content of *Marchantia polymorpha* L. *Turkish Journal of Biology*. https://doi.org/10.3906/biy-1106-15

Le, N. T., Ho, D. V., Doan, T. Q., Le, A. T., Raal, A., Usai, D., Sanna, G., Carta, A., Rappelli, P., Diaz, N., Cappuccinelli, P., Zanetti, S., Nguyen, H. T., & Donadu, M. G. (2020). Biological activities of essential oils from leaves of *Paramignya trimera* (Oliv.) Guillaum and *Limnocitrus littoralis* (Miq.) Swingle. *Antibiotics*, *9*(4), 207. https://doi.org/10.3390/antibiotics9040207

Lin, L.-C., Pai, Y.-F., & Tsai, T.-H. (2015). Isolation of luteolin and luteolin-7- *O* -glucoside from *Dendranthema morifolium* Ramat Tzvel and their pharmacokinetics in rats. *Journal of Agricultural and Food Chemistry*, *63*(35), 7700–7706. https://doi.org/10.1021/jf505848z

Nguyen, M. T. T., Dang, P. H., Nguyen, T. N., Bui, L. T. T., Nguyen, H. X., Le, T. H., Van Do, T. N., & Nguyen, N. T. (2018). Paratrimerins G and H, two prenylated phenolic compounds from the stems of Paramignya trimera. *Phytochemistry Letters*, *23*, 78–82. https://doi.org/10.1016/j.phytol.2017.11.014

Nguyen, V., & Scarlett, C. (2019). Cytotoxic activity of extracts and fractions from P*aramignya trimera* root and *Phyllanthus amarus* against pancreatic cancer cell lines. *Journal of Cancer Research and Therapeutics*, *15*(1), 245. https://doi.org/10.4103/jcrt.JCRT_85_18

Nguyen, V. T., Bowyer, M. C., Vuong, Q. V., Altena, I. A. V., & Scarlett, C. J. (2015). Phytochemicals and antioxidant capacity of Xao tam phan (Paramignya trimera) root as affected by various solvents and extraction methods. *Industrial Crops and Products*, *67*, 192–200. https://doi.org/10.1016/j.indcrop.2015.01.051

Nguyen, V. T., Sakoff, J. A., & Scarlett, C. J. (2017). Physicochemical Properties, Antioxidant and Anti-proliferative capacities of dried leaf and its extract from Xao tam phan (*Paramignya trimera*). *Chemistry & Biodiversity*, *14*(6), e1600498. https://doi.org/10.1002/cbdv.201600498

Nguyen, T., Trinh, T. T., Le, N. H., Kha, T. C., Phan, H. P., & Nguyen, H. (2024). Aqueous ultrasound-assisted extraction of phenolics and saponins from Xao tam phan plant parts: optimization and comparison of extraction efficiency. *Journal of Technical Education Science*, *19*(3), 77–88. https://doi.org/10.54644/jte.2024.1581

Nguyen, T. H., Nguyen, H. Q., Mai, T. P., & Nong, T. H. (2024). Nghiên cứu sơ bộ thành phần hoá học của lá cây xáo tam phân—*Paramignya trimera* (Oliv.) Burkill trồng tại Đồng Nai [Preliminary study on the chemical composition of the Xao tam phan leaves (*Paramignya trimera* (Oliv.) Burkill) grown in Dong Nai]. *Thai Binh Journal of Medicine and Pharmacy*, *11*(2), 97–101. https://doi.org/10.62685/6q0p0d94

Nguyen, X. H., Tran, T. H., Pham, N. K., Nguyen, P. H., Vu, T. L., Vu, T. H., Dang, T. Q., Do, H. N., Pham, T. H., Scarlett, C. J., Wessjohann, L. A., & Nguyen, M. C. (2024). *In vitro* and *in silico* study of new biscoumarin glycosides from *Paramignya trimera* against angiotensin-converting enzyme 2 (ACE-2) for preventing SARS-CoV-2 infection. *Chemical and Pharmaceutical Bulletin*, *72*(6), 574–583. https://doi.org/10.1248/cpb.c23-00844

Phi, T. C. M., Chu, H. H., Trieu Le, N., & Nguyen, D. B. (2020). Phylogenetic relationship of *Paramignya trimera* and its relatives: An evidence for the wide sexual compatibility. *Scientific Reports*, *10*(1), 21662. https://doi.org/10.1038/s41598-020-78448-2

Piao, X., Byun, H. S., Lee, S.-R., Ju, E., Park, K. A., Sohn, K.-C., Quan, K. T., Lee, J., Na, M., & Hur, G. M. (2021). 8-Geranylumbelliferone isolated from *Paramignya trimera* triggers RIPK1/RIPK3-dependent programmed cell death upon TNFR1 ligation. *Biochemical Pharmacology*, *192*, 114733. https://doi.org/10.1016/j.bcp.2021.114733

Quan, K. T., Park, H. B., Yuk, H., Lee, S. J., & Na, M. (2021). Paratrimerins J–Y, dimeric coumarins isolated from the stems of *Paramignya trimera*. *Journal of Natural Products*, *84*(2), 310–326. https://doi.org/10.1021/acs.jnatprod.0c00978

Tran D., Hoai Tran T., Trung Nguyen N., & Hoang Dang P. (2023). Flavonoids from leaves of *Paramignya trimera* (Rutaceae). *Science and Technology Development Journal - Natural Sciences*. https://doi.org/10.32508/stdjns.v7i3.1264

Tran, T. H., Le, T. H., Nguyen, T.-H. T., Binh Vong, L., Nguyen, M. T. T., Nguyen, N. T., & Dang, P. H. (2023). A new apotirucallane-type protolimonoid from the leaves of *Paramignya trimera*. *Natural Product Research*, 1–9. https://doi.org/10.1080/14786419.2023.2293145

Trinh, D. H., Tran, P. T., Trinh, B. T. D., Nguyen, H. T., Nguyen, H. D., Ha, L. D., & Nguyen, L.-H. D. (2020). Coumarins and acridone alkaloids with α-glucosidase inhibitory and antioxidant activity from the roots of *Paramignya trimera*. *Phytochemistry Letters*, *35*, 94–98. https://doi.org/10.1016/j.phytol.2019.10.010

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## HOẠT TÍNH KHÁNG OXY HOÁ CỦA LÁ *Paramignya trimera*

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**TÓM TẮT**

*Paramignya trimera hay còn được gọi là "XÁO TAM PHÂN", một loại cây thuốc cổ truyền có nguồn gốc từ Việt Nam, đã được sử dụng ở các nước châu Á vì đặc tính điều trị của nó. Mục tiêu chính của nghiên cứu này là phân lập các hợp chất hoạt tính sinh học từ lá của P. trimera bằng cách sử dụng quy trình có hướng dẫn sinh học dựa trên hoạt tính chống oxy hóa. Hoạt tính ức chế gốc tự do DPPH của các cao chiết đã được đánh giá và cao chiết (cao EA) có hoạt tính tốt nhất được lựa chọn để phân tích về hóa học. Ba hợp chất, cụ thể là luteolin (**1**), scopoletin (**2**), và ostruthin (**3**) được phân lập. Cấu trúc hóa học của các hợp chất này đã được làm sáng tỏ bằng cách so sánh dữ liệu phổ của chúng với dữ liệu tài liệu đã báo cáo trước đó. Hợp chất **2** thể hiện hoạt tính ức chế gốc tự do DPPH mạnh với giá trị $IC_{50}$ là 7.1 μM*

***Từ khoá:*** antioxidant; DPPH; luteolin; ostruthin; *Paramignya trimera*; scopoletin