

Instructions for Authors

Sociedad Mexicana de Computación Científica y sus Aplicaciones

Abstract

The abstract must be no more than 10 lines and clearly describe the objective of the work, the methodology employed, the main results, and the most relevant conclusions.

This same content must also be entered in the journal submission platform, in the corresponding abstract section.

1 Presentation

The *Boletín Sociedad Mexicana de Computación Científica y sus Aplicaciones* publishes original, high-quality research articles in the fields of applied mathematics and scientific computing, as well as scientific outreach articles of interest to the academic community.

All submitted manuscripts undergo peer review by national and international experts in the corresponding fields.

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<http://www.smcca.org.mx>
<https://www.scipedia.com/sj/smcca>

2 Editorial Policies of the SMCCA Bulletin

1. **Focus and Scope.** The Bulletin of the Mexican Society for Scientific Computing and its Applications (SMCCA) is an official publication aimed at disseminating original, high-quality research in the areas of applied mathematics and scientific computing. It accepts contributions in three categories: scientific research articles, outreach articles, and institutional information, such as news and events relevant to the community.
2. **Open Access and Non-Commercial Policy.** The SMCCA Bulletin adheres to the Diamond Open Access model. All content is made immediately, permanently, and freely available to the public.
 - **No fees (non-commercial):** authors are not charged for the processing, review, or publication of articles, and readers are not charged for access to or download of the material.
 - **Licensing:** publications are distributed under a usage license that allows users to read, download, copy, distribute, and use the texts for academic, scientific, and non-commercial purposes, provided that proper credit is given to the authors and to the original publication.

3. **Peer Review Process.** All submitted research and outreach articles are subject to a rigorous peer-review process carried out by distinguished external specialists affiliated with national and international institutions.

- The review evaluates scientific rigor, originality, quality, and thematic relevance.
- The process guarantees impartiality and editorial quality before the publication of any manuscript is authorized.
- The news and events sections are not subject to scientific review, but they are subject to copyediting and final approval by the Editorial Committee.

4. **Originality and Editorial Ethics.** The SMCCA Bulletin is committed to academic integrity. Submitted articles must be strictly original. Works that have been previously published or are simultaneously under review by other journals or print or digital media will not be accepted. Submission of a manuscript implies the authors' commitment to complying with these ethical standards.

3 Document Format

The documents submitted for review and possible publication must be prepared using the `smcca.cls` class, which defines the official format of the *Boletín Sociedad Mexicana de Computación Científica y sus Aplicaciones*.

This class automatically establishes margins, typography, headers, spacing, and styles necessary to ensure uniformity across all published contributions.

Authors must adhere to the structure and styles defined in the provided template, paying special attention to the organization of sections, the formatting of equations, tables, and figures, and the proper use of bibliographic references, as described in the following sections.

3.1 Equations

When writing an equation as part of the text, it is essential that it can be represented in a linear form. For this purpose, it should be written between dollar signs, for example: $Ax = b$.

Equations within the text should only be used when they can be expressed on a single line. Otherwise, expressions should be written as centered equations. For example, instead of writing $\frac{\partial u}{\partial x}$ within the text, it is recommended to use $(\partial u)/(\partial x)$ or a centered equation.

When an equation cannot be represented within the text, it should be written on its own line. There are two main ways to do this:

1. When numbering is not required, the following environment can be used:

```
\[
    \frac{\partial u}{\partial x}
\]
```

which produces a centered equation without numbering:

$$\frac{\partial u}{\partial x}$$

2. When numbering is required, the following environment should be used:

```
\begin{equation}
    \frac{\partial u}{\partial x}
    \label{label}
\end{equation}
```

which produces a numbered equation:

$$\frac{\partial u}{\partial x} \quad (1)$$

For systems of equations or aligned expressions, the `align` environment is recommended, as it provides greater flexibility than `eqnarray`:

```
\begin{align}
    ax &= b, \quad \backslash label{eq1} \\
    by &= c. \quad \backslash label{eq2}
\end{align}
```

which produces:

$$ax = b, \quad (2)$$

$$by = c. \quad (3)$$

If numbering is not required, the starred version may be used:

```
\begin{align*}
    ax &= b, \\
    by &= c.
\end{align*}
```

For matrix or vector expressions, arrays may be used within mathematical environments, as shown below:

```
\begin{equation}
    \left(
        \begin{array}{cccc}
            1 & 1 & & \\
            0 & \Delta x_1 & \dots & \Delta x_q \\
            0 & \Delta y_1 & \dots & \Delta y_q
        \end{array}
    \right)
    \begin{array}{l}
        \begin{array}{c}
            \Gamma_0 \\
            \Gamma_1 \\
            \Gamma_q
        \end{array} \\
        \begin{array}{c}
            F(p_0) \\
            D(p_0) \\
            E(p_0)
        \end{array}
    \end{array}
    =
    \left(
        \begin{array}{c}
            F(p_0) \\
            D(p_0) \\
            E(p_0)
        \end{array}
    \right)
\end{equation}
```

which produces:

$$\begin{pmatrix} 1 & 1 & \dots & 1 \\ 0 & \Delta x_1 & \dots & \Delta x_q \\ 0 & \Delta y_1 & \dots & \Delta y_q \end{pmatrix} \begin{pmatrix} \Gamma_0 \\ \Gamma_1 \\ \Gamma_q \end{pmatrix} = \begin{pmatrix} F(p_0) \\ D(p_0) \\ E(p_0) \end{pmatrix} \quad (4)$$

Finally, to reference an equation within the text, the command `\ref{label}` should be used, which produces a reference of the form (1).

3.2 Tables

Tables must always be centered and include a caption above the table. In general, a table can be constructed using the following structure:

```
\begin{table}[hpbt]
  \centering
  \caption{Table title.}
  \begin{tabular}{|l|c|r|}
    \hline
    1      & & 2      & & 3\\
    \hline
    a      & & b      & & c\\
    \hline
  \end{tabular}
  \label{Table1}
\end{table}
```

The above code generates a simple table, as shown below:

Table 1: Table title.

1	2	3
a	b	c

Tables may be as complex as necessary, provided that they maintain visual clarity and structural consistency. References to tables within the text must be made using the format **Table \ref{Table1}**, which will generate a reference such as Table 1.

An example of a more elaborate table is shown below:

Table 2: Comparative table.

Results using special nodes				
σ	Maximum error in $p(x, y)$	Infinity norm of the error in $p(x, y)$	Maximum error in $WA = I$	Infinity norm of the error in $WA = I$
13	1.4162	23.1928	1.00220	32.7982
25	0.61372	11.7524	1.00610	20.4337
392	0.98594	17.0185	0.99562	27.3561
Results without the use of special nodes				
$\sigma + 9$	Maximum error in $p(x, y)$	Infinity norm of the error in $p(x, y)$	Maximum error in $WA = I$	Infinity norm of the error in $WA = I$
13 + 9	5.476	124.0284	12.1347	4899.6121
25 + 9	16.7743	331.9071	8.5985	3509.9313
392 + 9	0.12616	1.2008	0.98685	254.334

3.3 Figures

Figures must always be centered and accompanied by a caption placed below them. They must also be scaled appropriately to align with the text width. This can be easily achieved using the following format:

All image files must be placed inside a directory named **figures**. The document class automatically searches for image files within this directory, so it is not necessary to specify the full path when including figures in the document.

```

\begin{figure}[hpbt]
  \centering
  \scalebox{.8}{
    \includegraphics[width=.3\textwidth]{umsnh.eps}
  }
  \caption{UMSNH shield.}
  \label{Figure1}
\end{figure}

```

This will produce Figure 1.



Figure 1: UMSNH shield.

It is also possible to include figures composed of multiple subfigures that span the full width of the page when necessary, as shown in Figure 2. Each subfigure may be labeled independently, allowing references such as Figure 2a, Figure 2b, and Figure 2c. The following structure may be used:

```

\begin{figure*}[hpbt]
  \centering
  \begin{subfigure}[t]{0.3\textwidth}
    \centering
    \includegraphics[height=1.2in]{umsnh.eps}
    \caption{UMSNH shield.}
    \label{Figure2a}
  \end{subfigure}
  \begin{subfigure}[t]{0.3\textwidth}
    \centering
    \includegraphics[height=1.2in]{umsnh.eps}
    \caption{UMSNH shield.}
    \label{Figure2b}
  \end{subfigure}
  \begin{subfigure}[t]{0.3\textwidth}
    \centering
    \includegraphics[height=1.2in]{umsnh.eps}
    \caption{UMSNH shield.}
    \label{Figure2c}
  \end{subfigure}
  \caption{Example of a figure with subfigures.}
  \label{Figure2}
\end{figure*}

```

References to figures must be made using the format **Figure** \ref{Figure1}, which will generate references such as Figure 1.



Figure 2: Example of a figure with subfigures.

It is important to note that the submission platform (Scipedia) **does not support figures generated directly with TikZ**. Therefore, if diagrams, schematics, or illustrations are created using TikZ or similar environments, they must be exported beforehand to compatible formats (e.g., `.pdf` or `.eps`) before being included in the document.

3.4 Floats

The use of tables and figures may become problematic when they are treated as floating elements. Several options are available to control the position of these elements within the document.

The most common options that can be used in figure or table environments are the following:

- **h:** \LaTeX will attempt to place the figure exactly at the location where it is defined in the source code.
- **H:** \LaTeX will force the figure to appear precisely at the position where it is declared, preventing it from floating.
- **p:** \LaTeX will place the figure on a dedicated page containing only floats.
- **t:** \LaTeX will place the figure at the top of the current or following page.
- **b:** \LaTeX will place the figure at the bottom of the current or following page.

As a general recommendation, when the exact position of a figure or table is not critical (since it can be referenced from the text), the use of the option `[hpbt]` is suggested. This allows \LaTeX to manage the available space in the document more efficiently.

The `[H]` option should only be used when the understanding of the text depends directly on the immediate placement of the figure or table.

3.5 Bibliography

The bibliography of the document must be prepared using \BibTeX , by including a file with the `.bib` extension in the source code. A wide variety of tools are available to automatically generate this `.bib` file.

The standard format for a reference entry in such files is the following:

```
@book{lamport1994 ,
  author = {Lamport, L.},
  publisher = {Addison–Wesley},
  title = {\LaTeX},
  year = {1994}
}
```

```
@article{tinoco2020 ,
```

```

author = {G. Tinoco–Guerrero and F. J. Dominguez–Mota
          and J. G. Tinoco–Ruiz},
title = {A study of the stability for a generalized
         finite–difference scheme applied to the
         advection–diffusion equation},
journal = {Mathematics and Computers in Simulation},
volume = {176},
pages = {301––311},
year = {2020},
issn = {0378–4754},
doi = {https://doi.org/10.1016/j.matcom.2020.01.020}
}

```

Citations are made using the command `\cite{key}` when referring to a single reference, or `\cite{key,key2}` when referring to two or more works.

This will produce citations such as: a single reference, [2]; and multiple references, [1, 2].

For the bibliography to be displayed correctly at the end of the document, the following commands must be included:

```

\bibliographystyle{abbrv}
\bibliography{bibliografia}

```

The file `bibliografia.bib` must be located in the same directory as the main document file or in a directory accessible from the project. The file name may be modified freely, provided that it is updated accordingly in the `\bibliography{}` command.

The `abbrv` style is recommended for the *Boletín Sociedad Mexicana de Computación Científica y sus Aplicaciones*, as it provides a precise, compact, and standardized presentation of references.

4 Submission Instructions

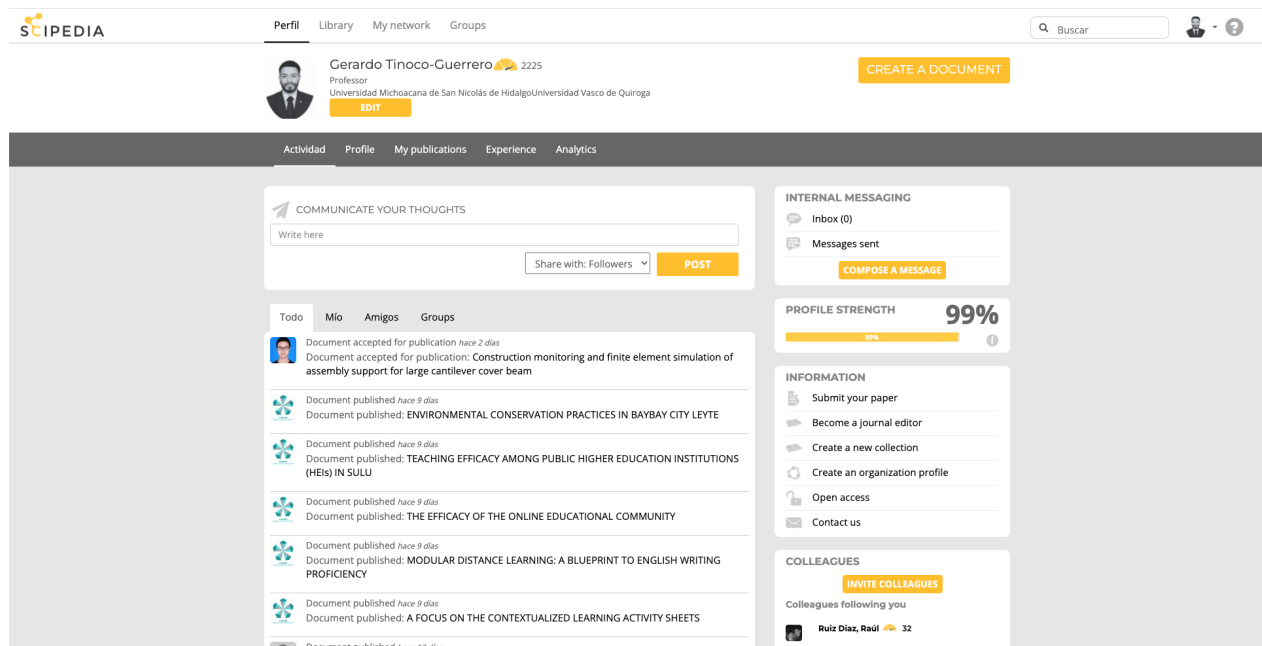
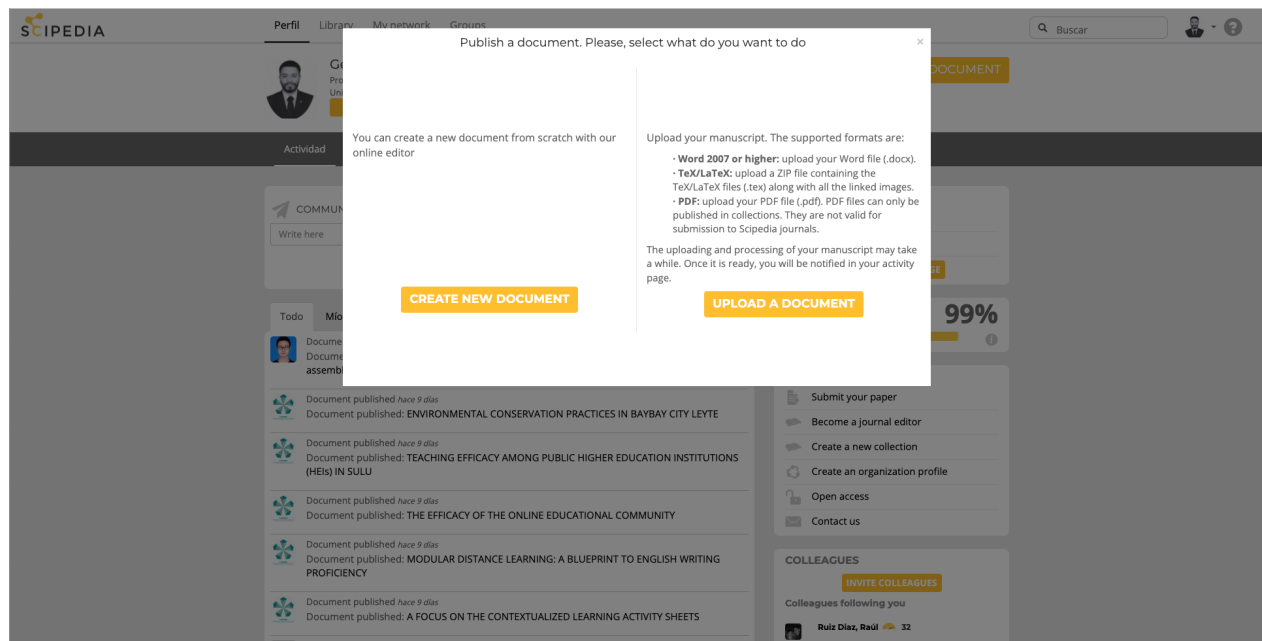
The *Boletín Sociedad Mexicana de Computación Científica y sus Aplicaciones* is hosted on the *Scipedia* editorial management platform; therefore, an active account on this platform is required, which can be created free of charge.

To submit an article for evaluation and possible publication, the following steps must be completed after creating the corresponding account:

1. Prepare the manuscript according to the format established in this guideline. It is important to note that both the abstract and the keywords must be entered directly on the platform and not within the document file. It is recommended to generate a single compressed (ZIP) file containing all the files required for proper compilation of the document.
2. Access the main Scipedia webpage (<https://www.scipedia.com/>) and log in. Once authenticated, the system will automatically redirect the user to their personal profile.
3. Click on the *Create a Document* button located in the upper-right corner of the screen, as shown in Figure 3.
4. Select the option *Upload a Document*, as shown in Figure 4, and then upload the corresponding ZIP file.
5. Enter the Abstract and Keywords in the corresponding fields and verify that the Title and Authors are correct. In this section, the appropriate thematic categories must be selected, and the *Original Document* option must be checked. See Figure 5.
6. Once the document has been processed, open it and select the option *Submit for Publication*. See Figure 6.
7. In the search field, type *Boletín Sociedad Mexicana de Computación Científica y sus Aplicaciones* to locate the corresponding journal.
8. Complete all required fields to finalize the submission process. Once completed, the manuscript will enter the editorial review stage and subsequently the peer-review process. See Figure 7.
9. Once the review process is completed, reviewer comments can be consulted under the *Review* tab. It is essential to address these observations and respond directly through the platform. See Figure 8.
10. If modifications to the source file (`.tex`) are required, the document must be uploaded again using the *RE-IMPORT* option. See Figure 9.
11. Once the manuscript is accepted, it will be published on the official website of the journal:
<https://www.scipedia.com/sj/smcca>.
12. Finally, after acceptance, authors must send the source files of the document to the Editor-in-Chief (gerardo.tinoco@umich.mx), since these files cannot be downloaded directly from the Scipedia platform.

References

- [1] L. Lamport. *L^AT_EX*. Addison-wesley, 1994.
- [2] G. Tinoco-Guerrero, F. Domínguez-Mota, and J. Tinoco-Ruiz. A study of the stability for a generalized finite-difference scheme applied to the advection–diffusion equation. *Mathematics and Computers in Simulation*, 176:301–311, 2020.

Figure 3: Select *Create a Document*.Figure 4: Select *Upload a Document*.

Review uploaded document

We extracted some information of the document, but something could be missing or misplaced. Please review this information and continue.

Title

Implementación de un algoritmo cripto-esteganográfico basado en el cifrado RSA para la ocultación de datos en medio

Abstract

En este trabajo se presenta la implementación de un método cripto-esteganográfico que consiste en la encryptación y la ocultación de datos usando imágenes digitales. Con la finalidad de hacer más seguros los métodos de transferencia de información por canales no seguros, el mensaje secreto es primeramente encryptado utilizando un método de cifrado de RSA, para luego este ser empotrado dentro de una imagen digital, con el formato png.

Categories

Computer Science, Software Engineering

Authors

Gerardo Tinoco-Guerrero, Héctor Calderón Pérez, Alejandro Ramon Carranza Ruiz, Andres Lazzarini, Bruno Nava, Raúl Ruiz Díaz

Keywords

Criptografía, esteganografía, algoritmo cripto-esteganográfico, información por canales no seguros

Document publication

☒ Original document ☐ Already published elsewhere

CONTINUE

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Figure 5: Complete and review the document information.

Implementación de un algoritmo cripto-esteganográfico basado en el cifrado RSA para la ocultación de datos en medios digitales

G. Tinoco Guerrero, H. Calderón, A. Carranza Ruiz, A. Lazzarini, B. Nava, R. Ruiz Díaz

EDIT **DELETE**

Read document **Wiki Editor** **Visual Editor** **Edit data** **History**

1 Introducción [edit]

Los métodos de esteganografía y procesos de criptografía existen desde hace miles de años, mismos que fueron creados con el fin de lograr comunicaciones y métodos para intercambiar información de una forma confidencial y secreta sin la necesidad de tener que pasar por un canal seguro.

En la actualidad la comunicación por internet se ha convertido en una parte fundamental en el mundo contemporáneo. La información es enviada de numerosas formas y usada en millones de aplicaciones. En la mayoría de estas es necesaria que la información viaje de forma confidencial, así como sucede en las grandes empresas, agencias gubernamentales, sectores privados, departamentos federales, de seguridad y policiales.

Partiendo con la criptografía esta es la encargada de lograr realizar diversos cambios y modificaciones en un texto plano original, de manera que este se transforme en un mensaje que no pueda ser entendido. A este proceso se le llama cifrado y su dificultad para lograr deducir lo que está escrito realmente varía ampliamente en los métodos que se utilizaron para su codificación, realizar el proceso inverso con el cual se cifró nos dará de vuelta el texto original y a esto se le conoce como decodificación.

Por otro lado, la esteganografía no busca realizar modificaciones en el texto original, en vez de esto se basa en ocultarlo tal cual es, pero de una forma que pase desapercibida a la vista de cualquiera y que sin previos análisis la complejidad de encontrar el mensaje oculto sea elevada.

De esta forma se implementa un nuevo algoritmo uniendo estas dos metodologías, en la parte criptográfica está el cifrado RSA y en la parte esteganográfica el método LSB, logrando así un método más robusto, seguro y confidencial.

En este artículo se presentan los algoritmos usados para lograr el método esteganográfico por el cual se usa la imagen digital como contenedor de datos para poder insertar el mensaje secreto en los bits de la imagen.

2 Descripción del método [edit]

2.1 RSA [edit]

La criptografía RSA es un cifrado asimétrico que se utiliza en muchos ámbitos de la transmisión de datos en Internet por su facilidad de uso. Este sistema consta de una clave RSA pública y otra privada. La clave pública se utiliza para el cifrado y la privada para el descifrado. Como no hay ningún algoritmo que pueda determinar la clave privada a partir de la clave pública.

SUBMIT FOR PUBLICATION

AUTHORSHIP CONFIRMATION

Authorship must be confirmed before the publication in a journal.

Tinoco Guerrero, Gerardo 2225 confirmed ✓

Calderón, Héctor 36 confirmed ✓

Carranza Ruiz, Alejandro Ramon 56 ASK FOR CONFIRMATION

Lazzarini, Andres 45 ASK FOR CONFIRMATION

Nava, Bruno 18 ASK FOR CONFIRMATION

Ruiz Díaz, Raúl 32 ASK FOR CONFIRMATION

RE-IMPORT DOCUMENT

Click the button below to re-import your document to:

RE-IMPORT

Figure 6: Select *Submit for Publication*.

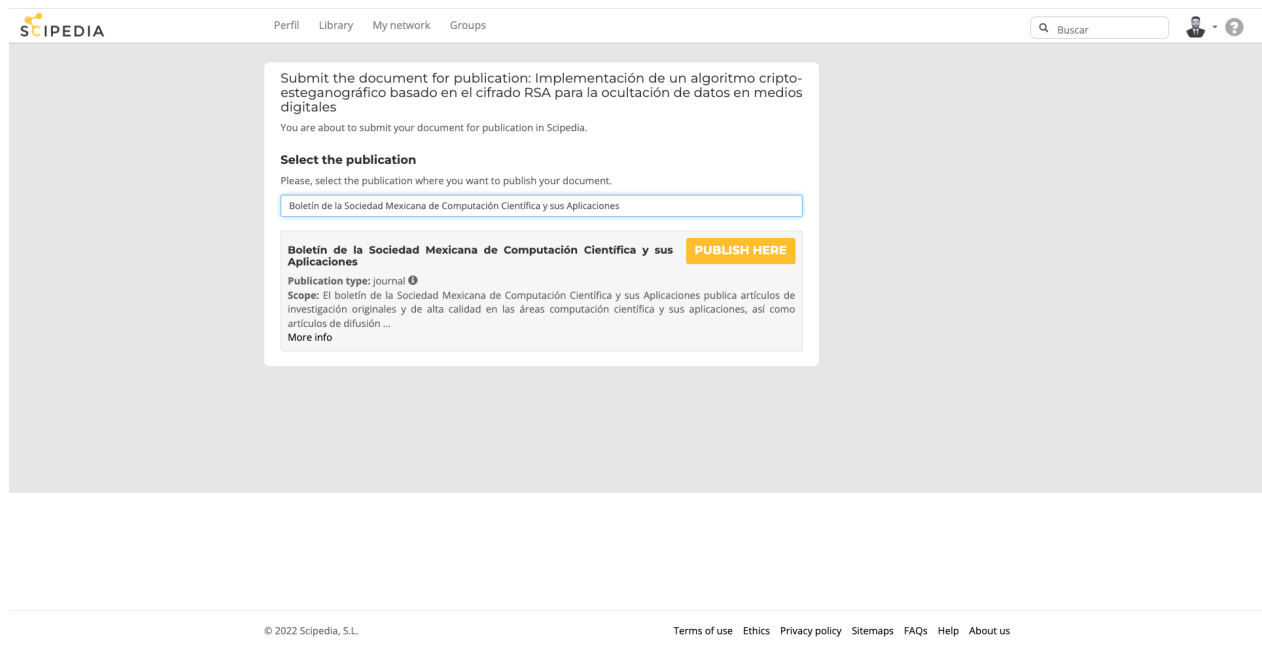


Figure 7: Search for the *Boletín Sociedad Mexicana de Computación Científica y sus Aplicaciones*.

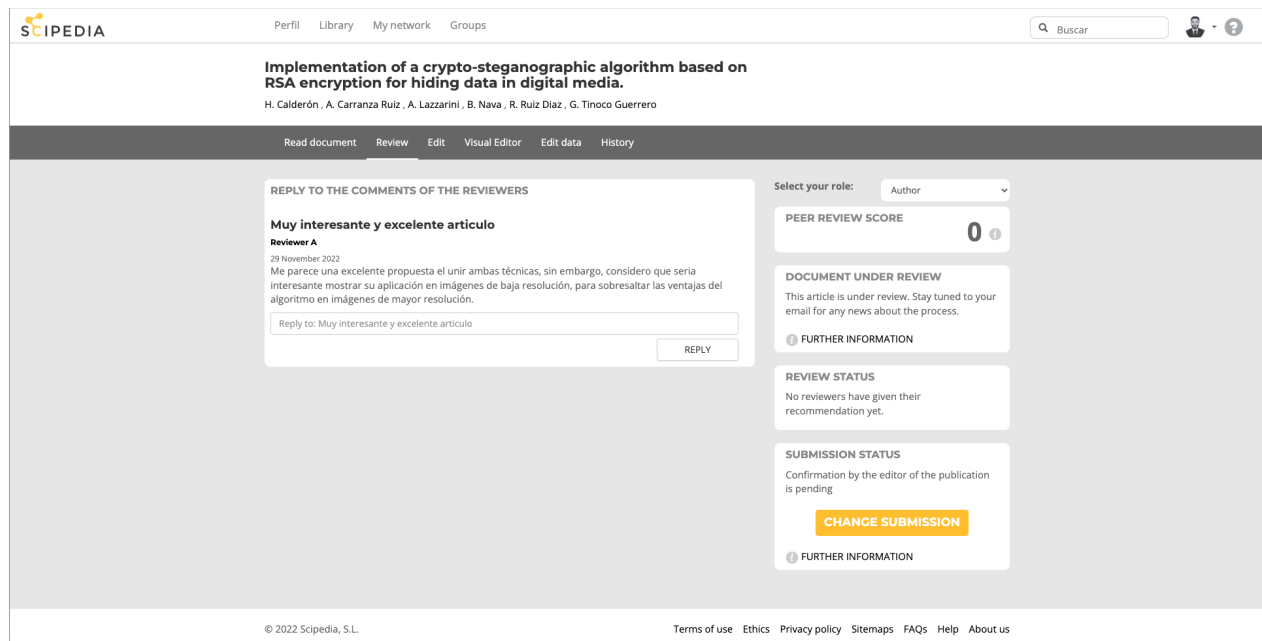


Figure 8: Document review panel.

The screenshot displays the SCIPEDIA web interface. At the top, there is a navigation bar with the SCIPEDIA logo, user links (Perfil, Library, My network, Groups), a search bar (Buscar), and user icons. Below this, a document titled "Implementación de un algoritmo cripto-esteganográfico basado en el cifrado RSA para la ocultación de datos en medios digitales (Paper under review)" by G. Tinoco Guerrero is shown. The document is in a "Review" state, indicated by a yellow banner. The main content area shows the "1 Introducción" section, which discusses cryptographic and steganographic methods. On the right side, there are several action buttons: "GET PDF", "GET EPUB", "DOCUMENT UNDER REVIEW" (with a sub-message "This article is under review."), "REVIEW PROCESS", "RE-IMPORT DOCUMENT" (with a sub-message "Click the button below to re-import your document to:"), "RE-IMPORT", "REPORT PROBLEMS", and "KEYWORDS". The keywords listed are "Criptografía", "Esteganografía", "Algoritmo cripto-esteganográfico", and "Información por canales no seguros".

Figure 9: Re-import the document to apply updates.