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(Editorial)

From Ancient Crossroads to Sustainable Paradise: The Resurgence of Sinai

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Standing at the crossroads of continents and eras, Sinai's past whispers of ancient empires. Its wind-sculpted landscapes hold the echoes of countless caravans that once traversed its unforgiving terrain. But Sinai isn't merely a dusty relic; it's a land where the echoes of history intertwine with the promise of a vibrant future.

Sinai Liberation Day is celebrated annually in Egypt on the 25th of April. The commemoration of this national holiday signifies the comprehensive evacuation of Israeli military forces from the Sinai Peninsula in 1982, representing a significant triumph and the restoration of Egyptian authority over the territory. The occasion commemorates the selfless acts of the Egyptian military backed up by the Egyptian citizines and the outstanding performance of the Egyptian State in the related arbitration case and recollects the long struggle for liberation.

The future of Sinai, however, is being shaped with a strong emphasis on sustainability. The significance of climate action was further emphasised when Sharm El-Sheikh, situated at the apex of the peninsula, served as the venue for COP27, the 27th Conference of the Parties to the United Nations Framework Convention on Climate Change. Egypt is integrating the United Nations' Sustainable Development Goals (SDGs) into its regional plans, acknowledging the intricate equilibrium between economic progress and environmental preservation. The Red Sea is seeing a flourishing tourism industry, which is being complemented by environmentally responsible efforts to save the vibrant coral reefs and desert habitats. The primary objective of sustainable development plans is to safeguard the natural beauty of Sinai and other resources for the benefit of future generations, in accordance with the Sustainable Development Goals (SDGs) such as "Life Below Water" and "Life on Land." Sinai thus stands as a fascinating example of how a region steeped in history can embrace a sustainable future, ensuring its unique cultural and environmental heritage thrives for generations to come.

With regards to the ERURJ January 2024 issue, fifteen articles were published where nine articles were linked to third goal “Good Health and Well-Being” of the sustianbale development goals (SDGs) of the United Nations. In this sense, the review by Badie et al. [1] highlights the

urgency of understanding *Acinetobacter baumannii*, a highly aggressive hospital bacteria. Due to its resistance to many antibiotics and frequent outbreaks, new treatments are crucial. The research focuses on this bacterium's mechanisms for causing disease (virulence factors) and its methods of resisting antibiotics (resistance mechanisms). Also, the review by Abdel-Hadi [2] highlights analytical methods for drugs controlling influenza A and B viruses, which cause seasonal outbreaks. The drugs included Oseltamivir (Tamiflu®) focusing on various techniques to analyze the amount of Oseltamivir present in medications and bodily fluids, providing valuable data for future research on this drug.The review by Mohamed [3] focuses on xanthine derivatives which are promising agents for cancer treatment. These molecules show potential against various cancers and can act through multiple mechanisms.

Furthermore,the mini review by Abd Elhafeez [4] discusses diabetes as a growing health problem worldwide, especially in developing countries. It highlights the use of herbal remedies alongside traditional medications for diabetes control. The review focuses on four specific plants found in Egypt (mango leaves, rosemary leaves, barley grains, and *Delonix regia* leaves) and their potential mechanisms for lowering blood sugar, including antioxidant activity and stimulating insulin secretion.The review by Asharf and El-Sawy [5] explores recent advancements in various delivery methods using biomaterials, including implants, patches, microneedles, pills, and injectable systems for contraceptive agents due to the high rates of unplanned pregnancies globally. It even touches on how biomaterials might improve sterilization procedures.

Besides, the research article by Abo El-Fetoh et al. [6] investigates the potential of empagliflozin (Empa) to treat peptic ulcers (PU). They used rats with induced PU to test this. Rats were divided into three groups: control, PU-induced, and PU-induced with Empa treatment. The results showed that Empa reduced levels of inflammatory markers (TNF-α, NF-κβ, pepsin) associated with PU. And increased levels of protective factors (PGE2) that help the stomach lining. Therefore, Empa may be beneficial in treating peptic ulcers by reducing inflammation and promoting healing.

The short communication by Elsebai et al. [7] investigated the effect of splinting on dental implants using in-vitro models. The results showed that un-splinted implants transferred less stress to the supporting bone compared to splinted implants. In both groups, the distal aspect experienced higher stress than the mesial aspect. Moreover, Saud [8] explored using short implants in the back of

the jaw (posterior region) for dentures compared to standard implants placed further forward (inter foraminal region). While the stability of the standard implants seemed slightly higher, the difference wasn't statistically significant. This suggests that short implants in the back can be a reliable option for denture support. The short communication by Shafiaa [9] compared two jaw tumors: ameloblastoma (AM) and keratocystic odontogenic tumor (KCOT). AM has an unknown cause, while KCOT is considered a benign tumor and their relation to CD44; a hyaluronan glycoprotein receptor linked to cell adhesion and cancer. It wad found that KCOT expressed more CD44 than AM. This suggests a stronger breakdown in cell adhesion in KCOT, potentially explaining its faster growth compared to AM.

Concerning the ninth goal “Industry, Innovation and Infrastructure” and the eleventh “Sustainable Cities and Communities”, they were linked to four articles where the research article by Wadie [10] introduces a novel fault detection algorithm for power transmission systems. It leverages phasor measurement units (PMUs) to calculate the rate of change in reactive power (RPCQ) for each line. Deviations in RPCQ indicate faults, and the algorithm can pinpoint the affected line. Testing on a benchmark system confirmed its effectiveness in identifying various fault types at different locations, demonstrating its robustness and reliability. Also, the paper by Mostafa et al. [11] proposes a miniaturized OR logic gate design using a square lattice photonic crystal where careful design and simulations achieved a very small size (39.6 μm^2) with a high bit rate (3.2 Tb/s).The design outperforms existing ones (23% size reduction) while using established analysis methods and considering practical fabrication techniques.

Moreover, Refaat et al. [12] reviewed PVA/PEG blends with graphene oxide for energy storage. The addition of graphene oxide improved the energy storage capacity of the blend while keeping energy loss low. As a matter of fact, this review is also linked to the seventh goal of affordable and green energy.

Where the article by Ali et al. [13] tackles improving solar power plant output. It creates a system that monitors sunlight intensity using an "IoT technique" and optimizes power output with a modified PSO algorithm. This combination of real-time data and optimized power control aims to significantly improve solar plant performance. As a matter of fact, this review is also linked to the seventh goal of affordable and green energy. This articles is also linked to the seventh SDGs alongside the thirteenth SDG of climate action.

The study by Sharawy [14] refines the analysis of censored data with a right-truncated exponential distribution. It achieves this by establishing novel recurrence relations for calculating moment-generating functions. These functions then unlock the ability to compute various statistics, including means and variances, for censored datasets across different sample sizes and censoring schemes. This advancement surpasses prior methods for similar distributions.

In this sense, this issue protrayed articles representing five SDGs out of the seventeen goals (Figure 1). The editors are seeking several contributions for representation of more SDGs-linked publications in ERURJ.

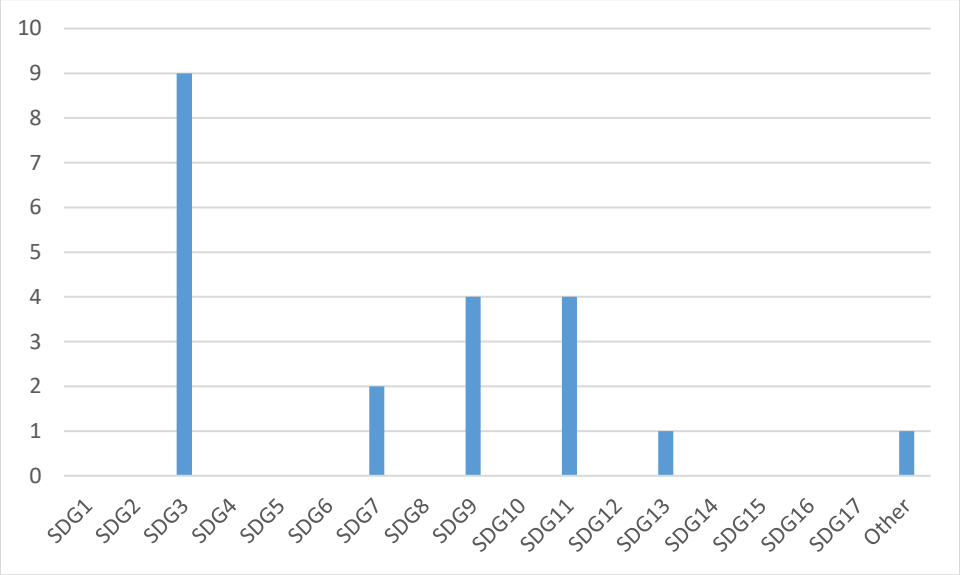

Figure 1: Articles Published in ERURJ January 2024 issue and their relation to SDGs

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