# Publications Template

| # | Research Title | Field | Abstract | Year of Publication Publishing | Publishing Link "URL" |
|---|---|---|---|---|---|
| 1 | Telmisartan and captopril ameliorate pregabalin-induced heart failure in rats | Pharmacology and Toxicology | Pregabalin (PRG) is highly effective in the treatment of epilepsy, neuropathic pain and anxiety disorders. Despite its potential benefits, PRG administration has been reported to induce or exacerbate heart failure (HF). It has been previously documented that overactivation of the renin angiotensin system (RAS) is involved in HF pathophysiological mechanism. The target of the current study was to examine the possible cardioprotective effect of telmisartan (Tel), an angiotensin II type 1 receptor (AT1R) blocker, compared with that of captopril (Cap), an angiotensin converting enzyme (ACE) inhibitor, in ameliorating PRG-induced HF in rats by assessing morphometric, echocardiographic and histopathological parameters. Furthermore, to investigate the role of RAS blockade by the two drugs in guarding against PRG-induced changes in cardiac angiotensin 1-7 (Ang 1-7) and angiotensin II (Ang II) levels, in addition to myocardial expression of ACE2, ACE, Mas receptor (MasR) and AT1R. Results showed that PRG administration induced morphometric, echocardiographic and histopathological deleterious alterations and significantly elevated cardiac Ang II, ACE and AT1R levels, while reduced Ang 1-7, ACE2 and MasR cardiac levels. Concurrent treatment with either Tel or Cap reversed PRG-induced morphometric, echocardiographic and histopathological abnormalities and | 2019 | https://www.sciencedirect.com/science/article/abs/pii/S0300483X19302677 |

| | | | | | |
|---|---|---|---|---|---|
| | | | revealed prominent protection against PRG-induced HF via downregulation of ACE/Ang II/AT1R and upregulation of ACE2/Ang 1-7/MasR axes. These are the first findings to demonstrate that the potential benefits of Tel and Cap are mediated by counteracting the altered balance between the RAS axes induced by PRG. Hence; Tel and Cap may attenuate PRG-induced HF partially through stimulation of ACE2/Ang 1-7/MasR pathway. | | |
| **2** | Assessment of pregabalin-induced cardiotoxicity in rats: mechanistic role of angiotensin 1-7 | Cardiovascular Toxicology | Pregabalin (PRG) possesses great therapeutic benefits in the treatment of epilepsy, neuropathic pain and fibromyalgia. However, clinical data have reported incidence or exacerbation of heart failure following PRG administration. Experimental data exploring cardiac alterations and its underlying mechanisms are quite scarce. The aim of the present work was to investigate the effect of PRG on morphometric, echocardiographic, neurohumoral and histopathological parameters in rats. It was hypothesized that alterations in cardiac renin angiotensin system (RAS) might be involved in PRG-induced cardiotoxicity. To further emphasize the role of RAS in the mechanism of PRG-induced cardiotoxicity, the protective potential of diminazene aceturate (DIZE), an ACE2 activator, was investigated. Results showed 44% decrease in ejection fraction and 7-fold increase in plasma N-terminal pro-brain natriuretic peptide. Histopathological examination also showed prominent vacuolar changes and edema in cardiomyocytes. In addition, PRG significantly increased angiotensin II (Ang II), angiotensin converting enzyme (ACE) and angiotensin II type 1 receptor (AT1R) levels, while decreased angiotensin 1-7 (Ang | 2020 | https://link.springer.com/article/10.1007/s12012-019-09553-6 |

| | | | | | |
|---|---|---|---|---|---|
| | | | 1-7), angiotensin converting enzyme 2 (ACE2) and Mas receptor (MasR) cardiac levels. DIZE co-administration showed prominent protection against PRG-induced echocardiographic, neurohumoral and histopathological alterations in rats. In addition, downregulation of ACE/Ang II/AT1R and upregulation of ACE2/Ang 1-7/MasR axes were noted in DIZE co-treated rats. These findings showed, for the first time, the detailed cardiac deleterious effects of PRG in rats. The underlying pathophysiological mechanism is probably mediated via altered balance between the RAS axes in favor to the ACE/Ang II/AT1R pathway. Accordingly; ACE2 activators might represent promising therapeutic agents for PRG-induced cardiotoxicity. | | |
| **3** | Microbial bowel infections-induced biochemical and biological abnormalities and their effects on young Egyptian swimmers | Scientific Reports | Swimmers' personal hygiene affects the spread of microbes in pools. The present study aimed to determine the incidence of microbial infections among young Egyptian swimmers and its impact on swimmers' scores. From January 2020 to June 2021, 528 public club swimmers were examined cross-sectionally. Swimmers were divided into two groups according to their star tests and their scores in the competition (group 1 with a high score and group 2 with a low score). Stool samples, biochemical and biological parameters were assessed. Microbial infections were 54% for intestinal parasitosis and 2.8% for Helicobacter pylori. The rate of intestinal parasitosis was higher among Gp2 as compared to Gp1. The results also revealed higher prevalence of Cryptosporidium spp., Giardia lamblia, Entameba histolytica, and Cyclospora among Gp2 than Gp1. Swimming frequency, and duration infuenced the infectious status that induced anemia, abnormal blood pressure, and heart rate. Infected swimmers with | 2023 | https://www.nature.com/articles/s41598-023-31708-3 |

| | | | | | |
|---|---|---|---|---|---|
| | | | cryptosporidiosis had higher alanine transaminase levels, white blood cells, and diferential cells but lower aspartate transaminase levels. Giardiasis showed higher reduction in the biochemical markers including ferritin, lactoferrin, iron, and transferring among Gp 2, compared to Gp 1 and thus affected the swimmers' scores. Thus, raising swimmers' hygiene awareness and targeting health education is obliged. | | |
| **4** | Development and characterization of plant derived wastes Nano-formulation loaded in thermo-reversible gel for burn healing: An effort towards Sustainable Development | Journal of Drug Delivery Science and Technology | The duty of research is to suggest solutions to ailments affecting humans. Recently, there has been a demand that these solutions should be environmentally responsible, eco-friendly and coincide with sustainable development goals. From this perspective, the objective of this study was to develop thermo-reversible and healing promoting gel formulations. The gel base incorporated Natural Plant derived Wastes' ethanolic extracts of either Kiwi peels (KE) or Yucca seeds (YE) (antioxidant, vitamins and anti-inflammatory natural agent) loaded chitosan nanoparticles for enhancement of burn healing performance. Comparative evaluation was done to all formulations to find the best competitor to conventional marketed drug formulations. Both extracts were standardized using HPLC. The lipoid content of YE was investigated using GC-MS, showing a content of 32.78 and 15.7 %of linoleic and pamiticmethyl esters, respectively. The nanoparticles characterization and the *in-vitro* physicochemical characteristics of the final dosage form formulations were assessed, revealing86.65 and 76.6 % entrapment efficiency, 311.4 and 198.1 nm particle size for KE and YE nanoformulations, respectively. The efficacy of the formulations was investigated in vivo against the commercial burn healing drug Mebo®, biochemical parameters and histopathology were statistically investigated. Reduction in wound area reached 69.12 and 72.01 % on day 12 for KE and YE nanoformulations, respectively. The YE encapsulated | 2024 | https://www.sciencedirect.com/science/article/abs/pii/S1773224724002119 |

| | | | | | |
|---|---|---|---|---|---|
| | | | within chitosan nanoparticles loaded gel showed a promising and a significant healing effect comparable to the most commonly used marketed drug product (Mebo®) and possible mechanisms involved in the phases of healing were illustrated. Eco-friendly waste herbal extracts-loaded chitosan nanoparticles in thermo-reversible gel have been successfully developed from the two extracts: Kiwi peels and *yucca* seeds for burn and wound healing. This confirms the possible use of traditional medicines in advanced formulations to satisfy the future market of pharmaceuticals. | | |