



المؤتمر الدولي الأول للتعليم المستدام (معرض الاختراع والابتكار 2024) - القاهرة

Development of an Emulgel Formula for the Extracts of Syrian Caper and Cayenne

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Our Goal

The aim of this research is to develop a traditional folk remedy into a pharmaceutical formulation using an innovative method that provides ease of use and application, as well as faster onset of action and fewer side effects upon application.

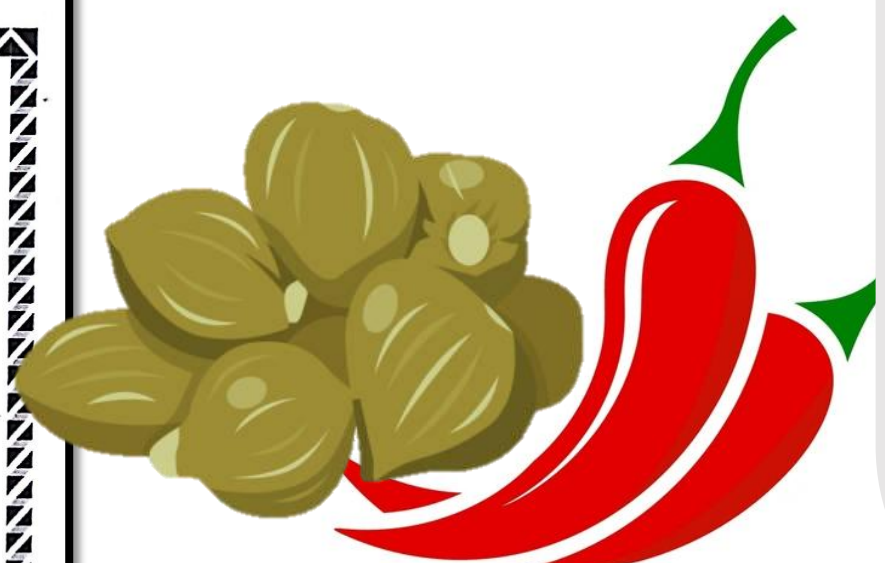
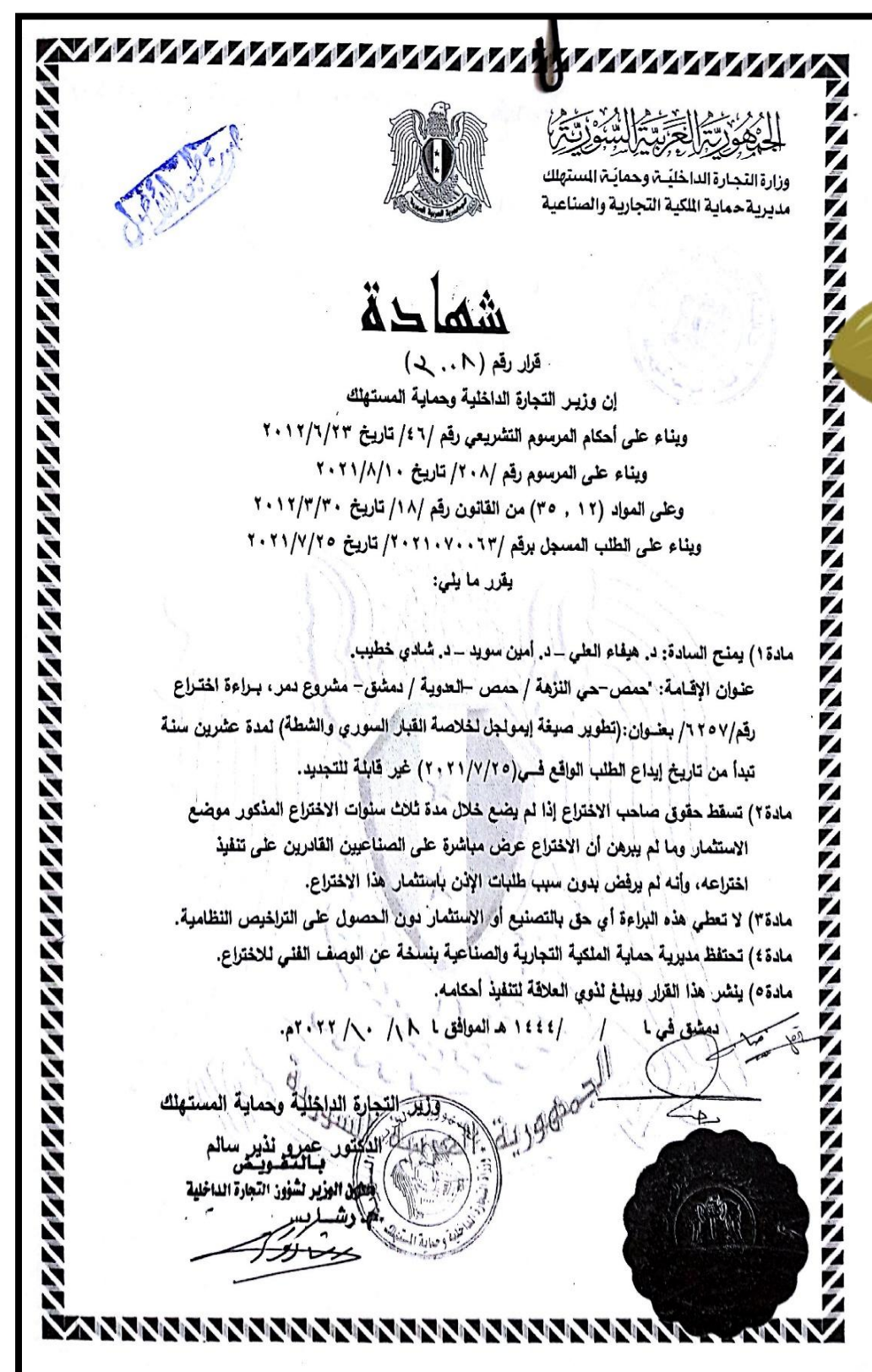


There is a growing trend in the discovery and application of bioactive agents from natural sources [2]. In this study, we investigated the effectiveness of traditional treatments for back pain by evaluating the efficacy of caper and cayenne extracts both in vitro and in vivo, followed by conducting a clinical trial.

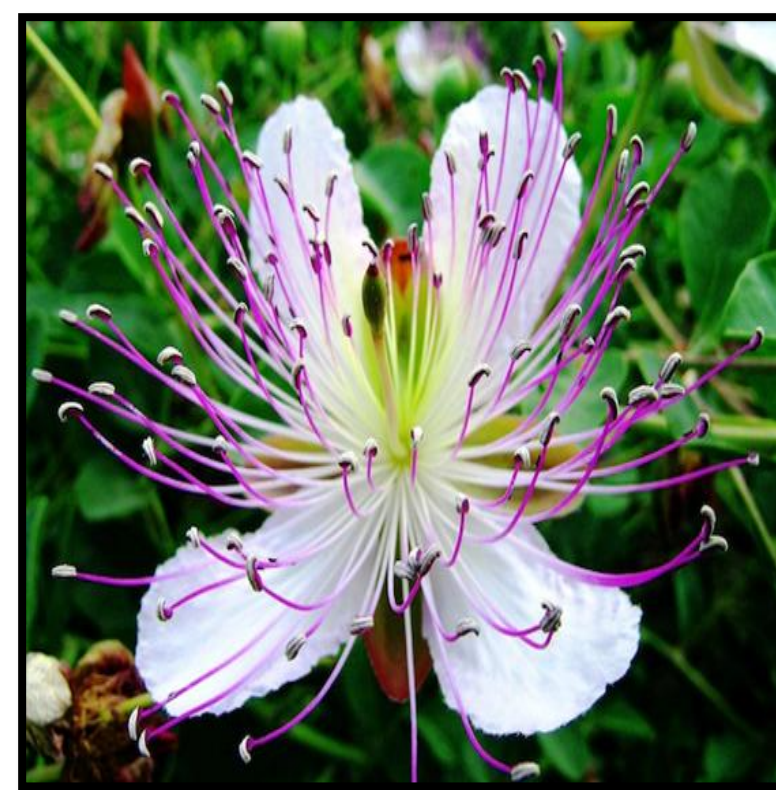
Practical Steps of the Research

1. Caper plants were collected from the eastern countryside of Homs, and cayenne peppers were collected from the countryside of Tartus.
2. The plants were classified, and standardized extracts were prepared using an environmentally friendly green method.
3. The chemical composition of the extracts was determined using liquid and gas chromatography techniques.
4. An emulgel was prepared from the aqueous extract of caper and the oily extract of cayenne, after determining the minimum effective non-toxic concentration of the extracts.
5. An animal study was conducted, comparing the emulgel's analgesic efficacy with a negative control and a positive control.
6. A clinical study was conducted to evaluate the effect of the emulgel on volunteer patients.
7. The final product was formulated as a pharmaceutical preparation, and a patent was obtained.

Patent Certificate



(a) Caper Fruits



(b) Caper Flower



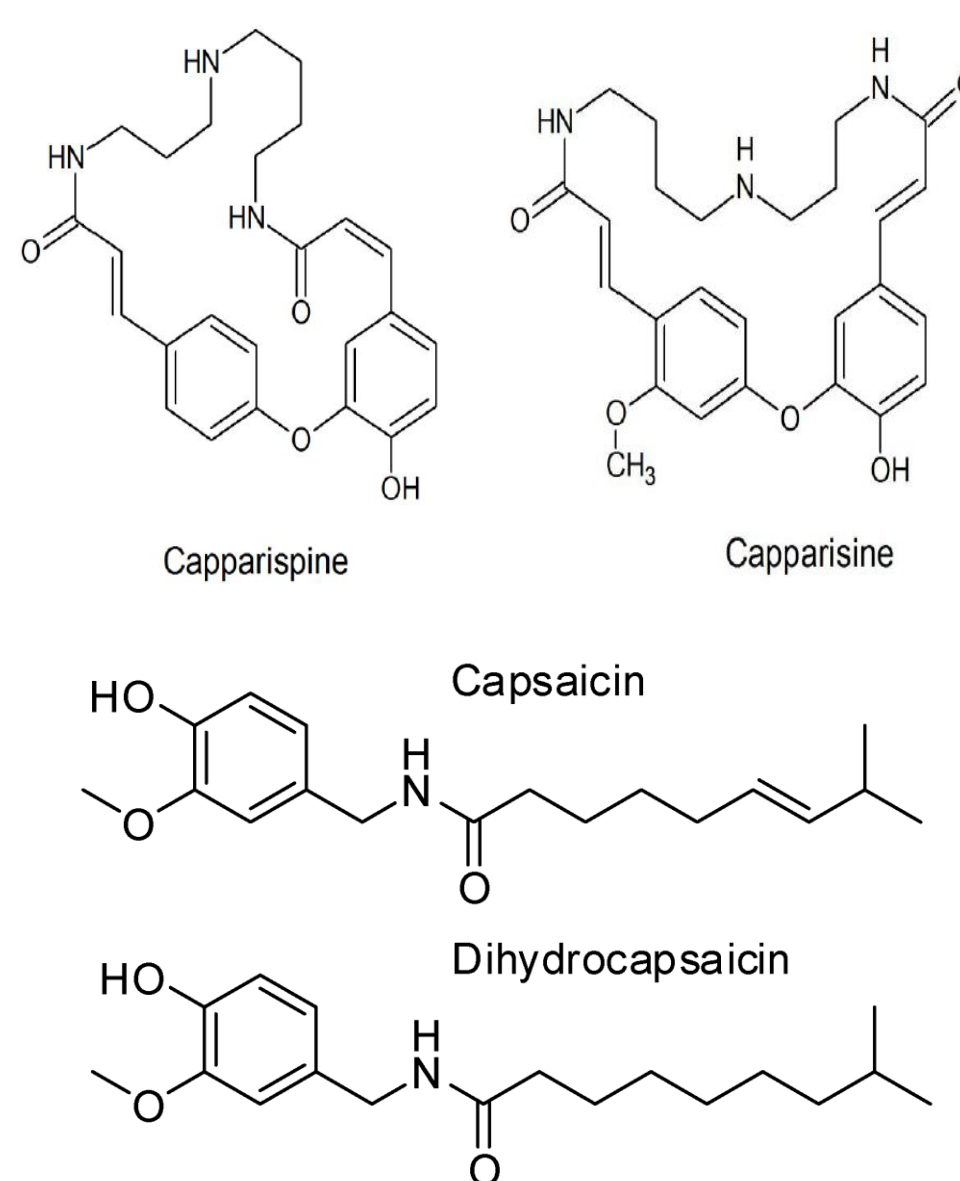
(c) Caper Root



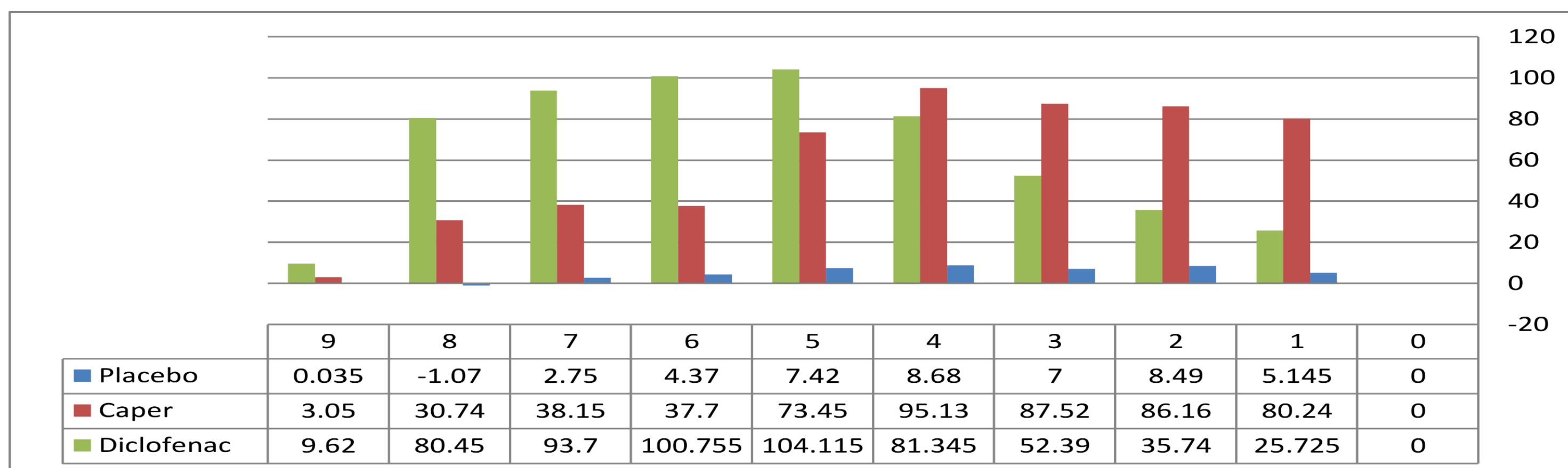
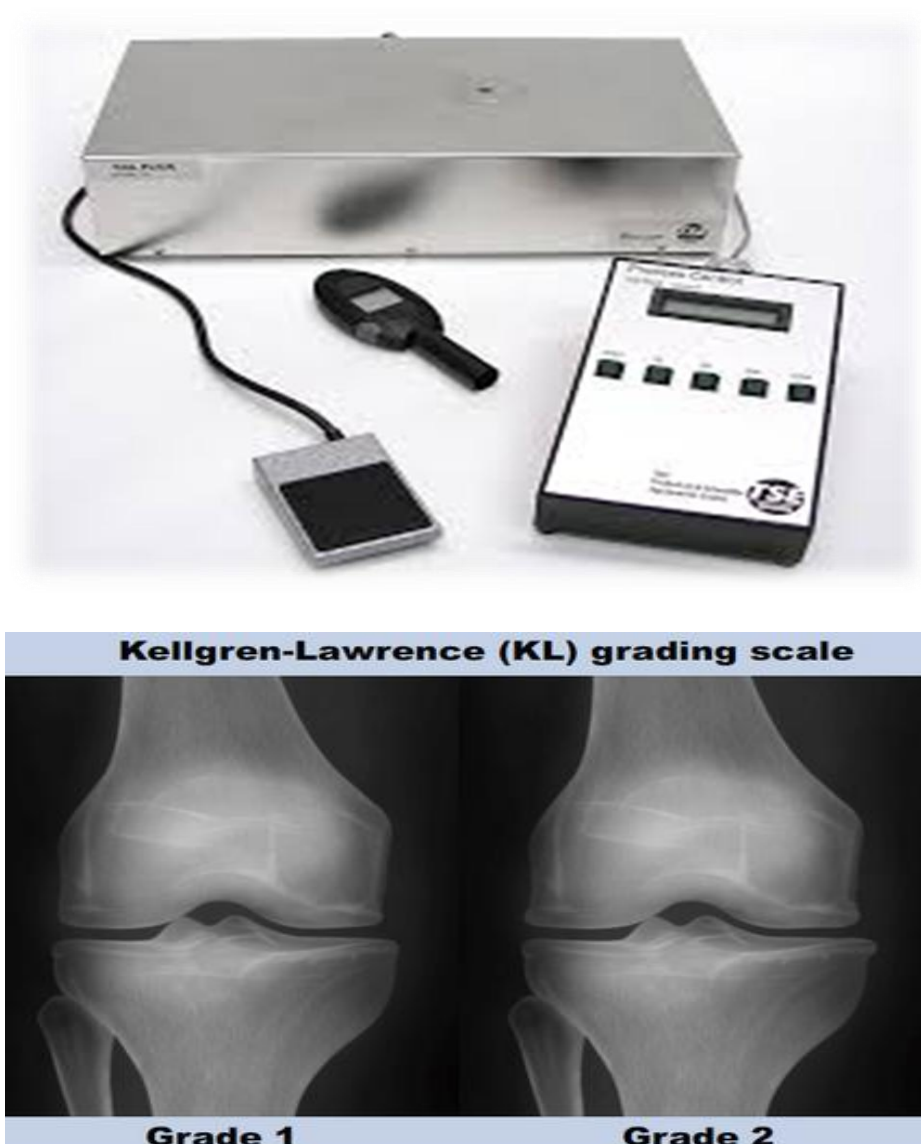
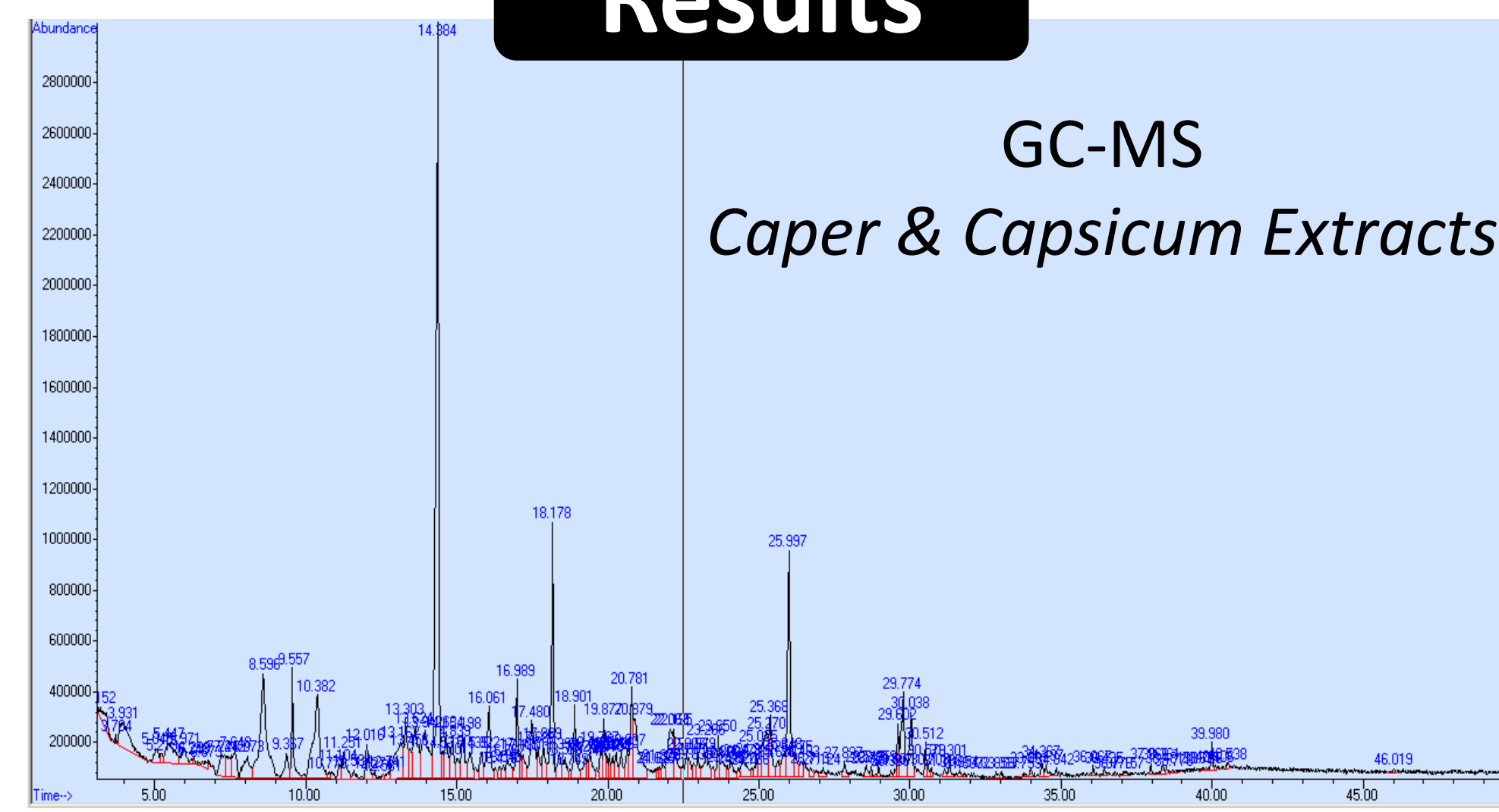
(d) Capsicum Fruits

Folklore Uses of Caper Root

One of the widely used traditional remedies for back pain and herniated nucleus pulposus is the topical application of caper root, which provides significant pain relief but can cause skin irritation, allergies, and sometimes severe burns. Additionally, chili pepper is traditionally used in various forms to alleviate back and joint pain, but it can also cause skin sensitivity. Therefore, this research has utilized traditional medicine knowledge and developed it by creating a new, safer, and easier method for using these two compounds.



Results



Discussion

Emulgel is a type of dermatological preparation that possesses the properties of both emulsions and gels. Emulgel is characterized by high stability and prolonged drug release, and it allows the incorporation of both hydrophilic and lipophilic drug substances. This enhances the utilization of the active compounds in caper and cayenne extracts for treating joint and bone diseases such as rheumatism, herniated nucleus pulposus (disc herniation), and sports injuries.

References

- 1- Mario Maresca, Laura Micheli, Lorenzo Di Cesare Mannelli, Barbara Tenci, Marzia Innocenti, Mohamad Khatib, Nadia Mulinacci and Carla Ghelardini, Acute effect of Capparis spinosa root extracts on rat articular pain, Journal of Ethnopharmacology, 2016.
- 2- Grabley, S., & Thiericke, R. (1999), Bioactive Agents from Natural Sources: Trends in Discovery and Application. Thermal Biosensors, Bioactivity, Bioaffinity, 101–154. doi:10.1007/3-540-49811-7_4
- 3- Evelyn Asante-Kwatia, Abraham Yeboah Mensah and Michael Frimpong. Baidoo Analgesic and Ant-Inflammatory effect of Ghanaian Medicinal Plants.
- 4- Haifeng Zhou, Renji Jian, Renji Jian, Renji Jian. Anti-inflammatory Effects of Caper (Capparis spinosa L.) Fruit Aqueous Extract and the Isolation of Main Phytochemicals. Journal of Agricultural and Food Chemistry (J Agr Food Chem) Dec.2012.