

CAVITATION APPARATUS FOR MEDICAL USE FOR TREATMENT OF KIDNEY STONES, PROSTATE HYPERPLASIA AND CANCER CELLS

This cavitation apparatus offers cost-effective and energy efficient treatment tool with a localized effect for treatments of urological diseases such as prostate, kidney stones. This device utilizing "hydrodynamic sources" can be used for a variety of treatments such as destroying kidney stones or killing infected cancer cells. Ultrasound therapy is a non-invasive treatment, where some difficulties are faced in targeting the precise location (kidney stone, cancerous prostate tissue) of the treatment, and the energy requirement of ultrasound therapy makes this method of treatment expensive.

In most cases, hydrodynamic cavitation is also not desired since the hydraulic devices are susceptible to catastrophic damage due to erosion with bubble collapse and subsequent high velocity liquid jets. Device provided by this specific technology is designed to exploit cavitations for good means such as biomedical treatment.

Potential Applications

This technology is applicable in Healthcare:

- Destroying kidney stones
- Treating Benign Prostate Hyperplasia,
- Killing infected cancer cells



CONTACT:

Iclal Arguc

📞 0090 216 4839110

📠 0090 536 6490033

✉ iclal@sabanciuniv.edu

**Sabancı
Universitesi**

Customer Benefits

- Cost effective
- Multiple Use
- Energy Efficient
- Multi-purpose medical device

Technology Features & Specifications

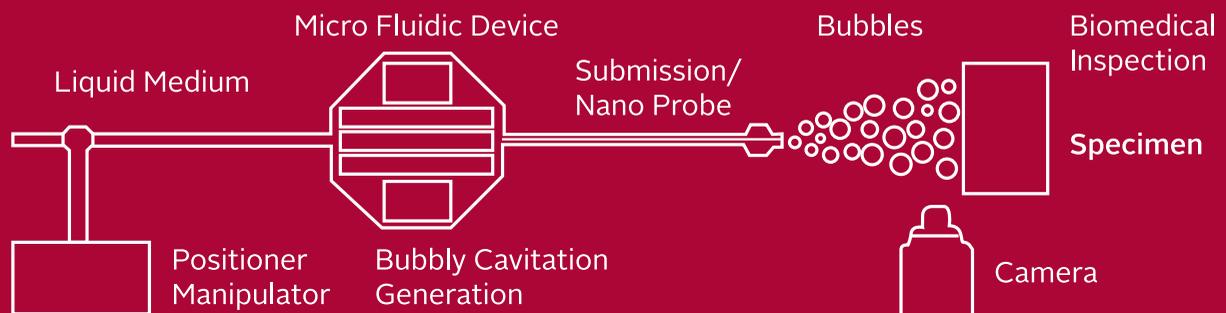
This cavitation apparatus including nano/micro size flow restrictive channels generates continuous micro/nano sized bubbles.

Generated hydrodynamic bubbly cavitation is highly destructive on the target surfaces once they are localized. This device can be utilized for a variety of treatments due the advantages of localization with the use of vision based control components and micromanipulators. Localization plays a key role in preserving the healthy tissues from destructive effect of the treatment compared to ultrasonic applications. These features of this specific technology result in a relatively cheap, energy efficient, and multipurpose medical device.

The destructive energy coupled with a cost effective device well overlaps with the therapy duration ranges for the other methods. Furthermore, the diameter of the cavitation probe is designed to fit into a regular endoscopy device making the developed technology an easy to implement tool for medical device manufacturers especially for the endoscopic device providers/manufacturers.

Market Trends and Opportunities

Global ultrasound devices market expected to reach USD 8.71 Billion in 2019. This device presents an attractive alternative and cost effective solution to medical device manufacturers



Probe/channel with sub micron/nano size hydraulic diameter (100-10000nm) (Bubble Gun)