Several treatments for malignant tumors, such as surgery and chemotherapy, have been designed. However they have different problems, depending of their applicability of the tumor size and side effect, among others. In this paper the use of magnetic hyperthermia treatment for tumor destruction is explored. Magnetic hyperthermia is a safe and non invasive method for cancer therapy [Z. Li, 2010]. This treatment focuses on the heating of particles, previously located within the tumor. The induction of heat causes to cell death and therefore the removal of the tumor. The importance of studies about the inclusion of biocompatible material in tumoral cells is to evaluate magnetic hyperthermia accepted as a safe and established clinically [A. Jordan, 1993]. In this work phantoms of agar with different concentrations of magnetical fluid have been studied. Agar is one of the materials used to simulate different types of body tissues, these samples are known like "phantoms"[H.Kato,1986]. To achieve the induction of heat through the magnetic particles due vibration at certain frequencies, two techniques are used. The first involves the application of an AC magnetic field and the second by using microwave transmitter. This work establishes relations between the composition of the samples, the excitation frequency and exposure time of samples in both processes with the temperature achieved. In this way it is possible to find the optimal conditions for the magnetical hyperthermia treatment [A. Jordan, 1999].