A magnetic resonance spectroscopy study of a phantom containing brain metabolites and BPA is presented. This is done because these metabolites (NAA, Creatine, Lactic Acid, myo-Inositol) are the chemical elements that a BPA molecule reaching a brain tumor will interact with. Different phantoms containing different amounts of BPA and equimolar amounts (12 mM) of NAA, Creatine, Lactic Acid and myo-Inositol were built and their proton magnetic resonance spectrum is investigated. It is reported here for the first time that the presence of BPA causes a signal to appear at arount 4.3 ppm which increases with increasing BPA concentration.