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(54) **Title:** A METHOD FOR DETECTING A TARGET SUBSTANCE BY NUCLEAR MAGNETIC RESONANCE

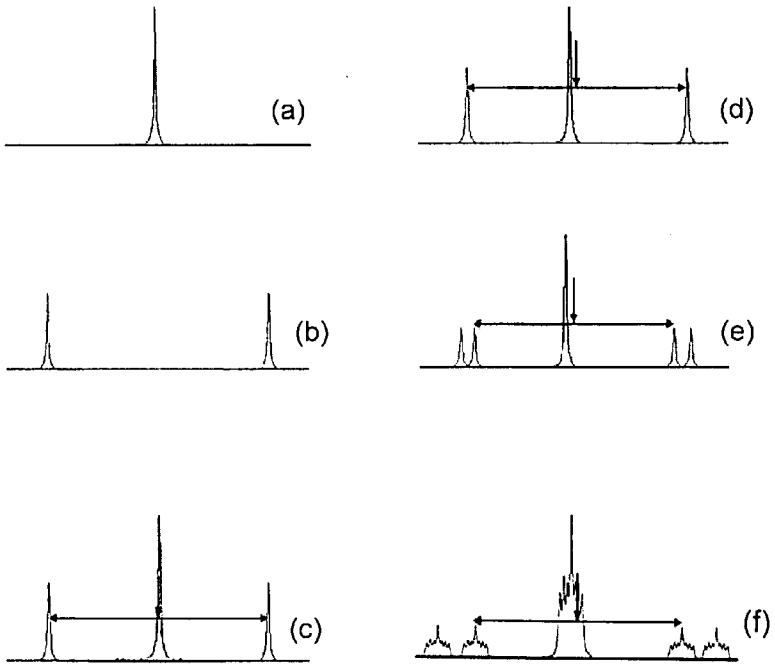

Fig. 1

(57) **Abstract:** A method for detecting a known target substance in a sample by means of nuclear magnetic resonance (NMR) of a preselected nuclear species contained in the target substance is described. The method comprises the steps of: a) providing a starting sample known or suspected to contain the target substance; b) adding to the starting sample an amount of isotope-labeled target substance, thus obtaining a composite sample, the isotope-labeled target substance being obtainable from the target substance by replacing at least one nucleus thereof by another isotope thereof, wherein said replacing induces a change in the position or multiplicity of at least one NMR signal of the target substance; c) acquiring NMR signals of the preselected nuclear species from the composite sample; d) determining actual positions of an auxiliary set of NMR signals of the isotope-labeled target substance; e) calculating actual positions of a principal set of NMR signals of the target substance from the actual positions of the auxiliary set of signals and from a predetermined relationship between relative positions of the signals of the isotope-labeled target substance and of the signals of the target substance; f) detecting at least one signal of the target substance located at an actual position calculated by step e).

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