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(54) Title: FLUORESCENCE DETECTOR

(57) Abstract

A fluorescence detector method and apparatus for detecting biological activities in a fluid specimen, such as blood, urine or sputum, where the specimen and a culture medium are introduced into sealable containers and exposed to conditions enabling a variety of metabolic, physical, and chemical changes to take place in the presence of microorganisms in the sample. In operation, the detector method and apparatus illuminate a chemical sensor material in the sealable container with excitation light which is turned on and off periodically according to a symmetric square wave, split the measured fluorescence photocurrent into two components that represent different harmonics of the symmetric square wave signal, measure the amplitudes of the two components, generate the ratio of the two components, and use that ratio as the sensor output signal to indicate biological activity.

