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A Small pH Sensor Catheter of the Endoscope for Acidity Test of Gullet and Stomach

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The detection of pH in the gullet and stomach is highly significant for the diagnosis of gastroesophageal reflux disease (GERD), particularly with the use of a pH sensor *in vivo*. Most conventional pH sensors are used singly and could not be inserted in the endoscope's working channel. Because the ion sensitivity field-effect transistor (ISFET) chip has become very small, we have made the pH sensor smaller than a conventional glass pH sensor, and have used it. In this paper, we introduce a small *in vivo* pH sensor catheter of 2.7 mm diameter and 8 mm length, which can be put in the endoscopy's working channel of 3 mm diameter. The catheter was evaluated in buffer solution (pH 2–12) and its sensitivity was 43 mV/pH. It was confirmed that the catheter properly functioned during an animal experiment.

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