

## 手のひらサイズのボール SAW ガスクロマトグラフによる日本酒の香気成分分析

(ボールウェーブ<sup>1</sup>・東北大学<sup>2</sup>) ○赤尾慎吾<sup>1</sup>・岩谷隆光<sup>1</sup>・岡野達広<sup>1</sup>・竹田宣生<sup>1</sup>・塚原祐輔<sup>1</sup>・大泉透<sup>1</sup>・福士秀幸<sup>1</sup>・田中智樹<sup>1</sup>・菅原真希<sup>1</sup>・辻俊宏<sup>2,1</sup>・武田昭信<sup>1</sup>・山中一司<sup>1,2</sup>

Odorants analysis of sake using a palm sized ball SAW gas chromatograph (<sup>1</sup>Ball Wave Inc., <sup>2</sup>Tohoku Univ.) ○Shingo Akao<sup>1</sup>, Takamitsu Iwaya<sup>1</sup>, Tatsuhiko Okano<sup>1</sup>, Nobuo Takeda<sup>1</sup>, Yusuke Tsukahara<sup>1</sup>, Toru Oizumi<sup>1</sup>, Hideyuki Fukushi<sup>1</sup>, Tomoki Tanaka<sup>1</sup>, Maki Sugawara<sup>1</sup>, Toshihiro Tsuji<sup>2,1</sup>, Akinobu Takeda<sup>1</sup>, and Kazushi Yamanaka<sup>1,2</sup>

Gas chromatograph (GC) is effective for analyzing odor components in food production and distribution, however GC is generally large and difficult to apply in the field. In contrast, we have developed a palm sized ball SAW GC by using a ball SAW sensor<sup>1)</sup> that utilizes surface acoustic wave (SAW) wave making multiple roundtrips on the surface of a sphere (Fig. 1)<sup>2)</sup>. In this study, we attempted a headspace analysis of the flavor components of six types of sake, a brewed beverage. Unlike the other brands (A, E, etc.), Ginjo-shu D was rich in isoamyl acetate, the main Honjozo flavor, and ethyl caprylate, the secondary Ginjo flavor, in addition to ethyl caproate, the main Ginjo flavor (Fig. 2). This brand is said to have used a combination of yeast for honjozo-shu and that for ginjo-shu. It would be useful if this kind of analysis could be done during brewing. **Keywords** : Gas Chromatograph; SAW Sensor; Odorants analysis

食品の生産や流通における香気成分分析にはガスクロマトグラフ(GC)が有効であるが、GC は大型で現場での適用が難しい。そこで我々は球状素子の表面を多重周回する弾性表面波(SAW)を利用したボール SAW センサ<sup>1)</sup>を適用した、手のひらサイズのボール SAW GC を開発した(Fig. 1)<sup>2)</sup>。本研究では、醸造飲料である日本酒 6 種の香気成分のヘッドスペース分析を試みた。吟醸酒 D は他の銘柄 (A,E 等) と異なり、主吟醸香のカプロン酸エチルに加え、本醸造香の酢酸イソアミルと副吟醸香であるカプリル酸エチルも豊富に含んでいた (Fig.2)。この銘柄は本醸造酒用の酵母と吟醸酒用の酵母を併用したと言われる。このような分析が醸造中にできれば有用と期待される。

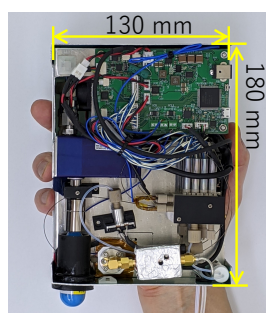


Fig.1 palm sized Ball SAW GC

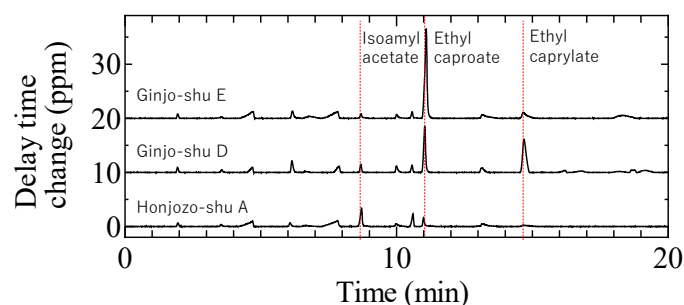


Fig.2 Chromatograms obtained by analysis of sakes

- 1) K. Yamanaka, H. Cho, and Y. Tsukahara: Appl. Phys. Lett. 76 (2000) 2729.
- 2) T. Iwaya, et al: Proc. Symp. Ultrason. Electronics, 40 (2019) 1P2-15.