

# Forensic Analysis in the Wakayama Arsenic Case

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# Forensic Analysis in the Wakayama Arsenic Case

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**ABSTRACT:** In the Wakayama poisoned curry incident in July 1998, 67 inhabitants were killed or injured by eating arsenic-laced curry at a neighborhood summer festival in Wakayama, a local city 400 km southwest of Tokyo. Heavy elements at ppm level, including arsenic, were discovered in the curry using SPring-8, a synchrotron radiation facility, as the tool for forensic analysis. This material evidence resulted in the accused being convicted and sentenced to death. Further analysis and review by other experts indicated the data presented in the trial were not enough to definitively identify the suspect as the murderer. This review highlights the potentially misinterpreted data and re-analysis truth.

**KEY WORDS:** Difference identification, expert opinion in criminal court, misjudgment, scientific evidence, SPring-8.

## INTRODUCTION — The Case

On July 25, 1998, the residents of a local street in Wakayama, a city 400 km southwest of Tokyo, were served curry at a neighborhood summer festival and 67 individuals were injured or killed [30,31].

The curry was cooked in a garage near the venue, and was completed around noon. At 3:00 p.m., the curry pots were carried to the venue. During the noon to 3:00 p.m. period, several housewives had tended the curry pots in the garage.

On that day from 9:00 to 11:00 in the morning, pesticide was sprayed in the field near the venue [2]. At about 6:00 p.m., people began to eat the curry, and 10–15 min later they began to develop nausea and vomiting. The first call for ambulances was at 7:08 p.m. The first transfer to the hospital was at 7:14 p.m., and by 9:04 p.m. more than 50 individuals were affected. A hospital doctor said, “Because of the rapid onset, the possibility of rotting food is negligible; the illness was most likely associated with exposure to sprayed toxic chemicals.” Urine and blood samples from patients were collected for pesticide testing.

Early the next morning, July 26, a 64-year-old man, a 53-year-old man, a 10-year-old child, and a 16-year-old high school girl died. The two men killed were neighborhood association board members, to whom curry was offered first.

## I. FORENSIC INVESTIGATION AND COURT DECISIONS

At 5:30 a.m. on July 26, the forensic lab of the local police identified cyanide compounds in the vomit of five individuals, including victims. On July 29, the National Research Institute of Police Science (NRIPS) in Tokyo detected arsenic in the curry [38]. On August 1, arsenic and cyanide were detected in both the serving trays and curry, but the cyanide was only found at trace amounts—such

as levels found in smokers or ordinary individuals. On August 6, arsenic was discovered in a paper cup found in the garbage bag at the venue [35,36,38,40,41]. At this point, this case was treated as a potential mass murder with arsenic compounds.

From August to the end of September, Mr. M voluntarily submitted to police samples, such as arsenious acid ( $\text{As}_2\text{O}_3$ ), other chemicals, and cement that were used for termite/white ant extermination. Mr. M is a brother of a suspect, H, an insurance saleswoman, and was a resident in this local area. Because H and her husband were rumored as the murders, M testified that he voluntarily submitted these samples to avoid being suspected [1].

H was arrested and prosecuted for insurance fraud in October. Her husband attempted to cheat an insurance company by inducing members of his company to ingest and himself ingesting a tiny amount of arsenic used for termite extermination. He obtained a health-damage certificate from a doctor friend.

On December 9, H was arrested again as a suspect of the poisoned-curry murder case, which involved 67 victims. It was prosecuted as a case in conjunction with the insurance fraud, but in fact H had not insured any of the 67 victims.

### A. Key Evidence and Expert Witness Reports

The most important evidence in this case was the expert analysis of arsenic in eight evidence items (see **Table 1**). H often provided arsenic to her relatives and friends for termite extermination purpose [1,27–29]. Evidences 1–4 were stored by Mr. M who is a brother of H. Evidence 1 is a 50-kg green drum of industrial arsenic, one of 60 such drums imported from China by a company in Osaka, Japan. The ingredient of Evidence 1 was not compared to that of the other 59 drums. Evidence 5 was stored by Mr. T, a friend of H, in the garage of H’s former house, where anyone can go in and out because the entrance is

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Yuko Kimura was born and raised in Yokohama (Kanagawa, Japan). Majoring in Japanese literature, she graduated from Ritsumeikan University (Kyoto, Japan) in 1986. Having served as a magazine editor and as secretary of a member of the House of Representatives, Ms. Kimura is now an assistant on the research project entitled “Law and Human Sciences” under the guidance of Professor Shinichi Ishizuka of the Ryukoku University Law School. She is a research fellow at Ryukoku University’s Corrections and Rehabilitation Center and a secretariat member of the retrial request legal counsel of the Wakayama poison curry case.