

SPOTLIGHT ON FACULTY MEMBER

Dr. Muhammad Amin, 38 years old, was born in Pinrang, Sulawesi, Indonesia. He became interested in chemistry while in secondary school in Sulawesi. After receiving his bachelor's degree in chemistry from Hasanuddin University (Makassar), Dr. Amin spent six years at Gifu University, first completing a masters and then doctoral work in analytical chemistry, specializing in ion exchange chromatography. He joined Universiti Malaysia Pahang on 29 September 2008 bypassing an opportunity for postdoctoral study at Yokohama University.

Dr. Muhammad Amin's area of research interest is water quality and the environment. He utilizes ion chromatography in water analysis as it is more selective and sensitive for detecting inorganic anions and cations compared to atomic absorption spectroscopy (AAS) and inductively coupled plasma (ICP).

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"Environmental pollution around the world is worrying," he says.

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"Nitrates are easily reduced to nitrites. Short-term exposure to drinking water with a nitrate level at or just above the health standard of 10 mg/l nitrate-N is primarily a potential health problem for infants, because of their high water consumption relative to their body size and because their immature digestive systems are more likely than adults' to allow the reduction of nitrate to nitrite.

"The presence of nitrite in the digestive tract of newborns can lead to a disease called methemoglobinemia.

"Blood contains an iron-based compound called hemoglobin, which carries oxygen. When nitrite is present, hemoglobin can be converted to methemoglobin, which cannot carry oxygen. In the blood of adults, enzymes continually convert methemoglobin back to hemoglobin, and methemoglobin levels normally do not exceed 1 percent. Newborn infants have lower levels of these enzymes, and their methemoglobin level is usually 1 to two percent. Anything above that level is considered methemoglobinemia," he said.

Dr. Muhammad Amin is married to Andi Haryati Yusuf. The couple has four children, three boys and a girl.



Dr. Muhammad Amin, Analytical Chemist

