

## INTISARI

### PERBEDAAN KADAR BESI (Fe) DAN MANGAN (Mn) AIR SUMUR SEBELUM DAN SESUDAH PENYARINGAN DENGAN FILTER SINGLE MULTIMEDIA

Zaiman, Haryono, Abdul Hadi Kadarusno  
Jurusan Kesehatan Lingkungan Poltekkes Kemenkes Yogyakarta  
Jl. Tata Bumi No 3 Banyuraden Gamping, Sleman, Yogyakarta  
Email: [zaiman17@yahoo.co.id](mailto:zaiman17@yahoo.co.id)

**Latar Belakang:** Keberadaan air bersih tidak bisa dipisahkan dengan kehidupan manusia. Sumber air bersih yang banyak digunakan oleh masyarakat di Indonesia adalah sumur gali dan sumur bor. Ada beberapa parameter yang perlu diperhatikan pada penggunaan air sumur sesuai dengan standar baku mutu parameter kimia diantaranya Besi dan Mangan. Zat Besi dan Mangan di dalam air dapat menyebabkan gangguan kesehatan seperti serangan jantung, gangguan pembuluh darah, kanker hati, dan dapat merusak dinding usus.

**Tujuan penelitian:** Diketuinya perbedaan kadar Besi dan Mangan air sumur setelah dilakukan penyaringan dengan *Filter Single Multimedia*.

**Metode penelitian:** Penelitian ini merupakan penelitian *quasi eksperimen* dengan desain *Pre Test-Post Test Group Design*. Penelitian dilaksanakan pada bulan Desember 2020-Maret 2021. Obyek penelitian ini adalah air sumur yang mengandung kadar Besi dan Mangan tinggi terdiri dari dua air sumur di Dusun Badrankidul, dan tiga air sumur di Dusun Watugajah, Minggir, Sleman, Yogyakarta. Penelitian dilakukan penyaringan dengan *Filter Single Multimedia* yang terdiri dari media filter ferrolite, zeolite, resin dan arang aktif dengan ketebalan masing-masing media 10 cm. Sampel air yang didapatkan 5 sampel *pre* dan 5 sampel *post*.

**Hasil penelitian:** Ada perbedaan antara kadar Besi sebelum dan sesudah penyaringan dengan *Filter Single Multimedia*, rata-rata penurunan kadar besi setelah penyaringan 87,38%. Hasil uji *T-Test* terikat diperoleh *p value*: 0,028. Ada perbedaan antara kadar Mangan sebelum dan sesudah penyaringan dengan *Filter Single Multimedia*, rata-rata penurunan kadar Mangan setelah penyaringan 80,61%. Hasil uji *T-Test* terikat diperoleh *p value*: 0,000.

**Kata Kunci:** *Filter Single Multimedia*, besi, mangan, ferrolite, zeolit, resin, arang aktif.

## ABSTRACT

### DIFFERENCE OF IRON (Fe) AND MANGANESE (Mn) CONTENTS OF WELL WATER BEFORE AND AFTER FILTERING WITH FILTERS SINGLE MULTIMEDIA

Zaiman, Haryono, Abdul Hadi Kadarusno  
Jurusan Kesehatan Lingkungan Poltekkes Kemenkes Yogyakarta  
Jl. Tata Bumi No. 3 Banyuraden Gamping, Sleman, Yogyakarta  
Email: [zaiman17@yahoo.co.id](mailto:zaiman17@yahoo.co.id)

**Preface:** The existence of clean water cannot be separated from human life. Sources of clean water that are widely used by people in Indonesia are dug wells and boreholes. There are several parameters that need to be considered in the use of well water in accordance with the standard quality standards for chemical parameters including iron and manganese. Iron and Manganese in water can cause health problems such as heart attacks, blood vessel disorders, liver cancer, and can damage the intestinal wall.

**Purpose:** Knowing the difference in iron and manganese levels in well water after filtering with a Filter Single multimedia.

**Method:** This study is a quasi-experimental study with a Pre Test-Post Test group design. The research was conducted in December 2020-March 2021. The object of this research is well water that contains high levels of iron and manganese, consisting of two wells in Dusun Badrankidul, and three wells in Dusun Watugajah, Minggir, Sleman, Yogyakarta. The research was carried out by filtering with a Filter Single Multimedia consisting of ferrolite, zeolite, resin and activated charcoal filter media with a thickness of 10 cm each. Water samples obtained 5 samples pre and 5 samples post.

**Results:** There is a difference between the iron content before and after filtering with the Filter Single Multimedia, the average reduction in iron content after filtering is 87.38%. The result of the bound T-Test obtained p value: 0.028. There is a difference between the Manganese content before and after filtering with the Filter Single Multimedia, the average decrease in Manganese content after filtering is 80.61%. The result of the bound T-Test obtained p value: 0,000.

**Keywords:** *Filter Single Multimed, iron, manganese, ferrolite, zeolite, resin, activated charcoal.*