

Interactive comment on “Evaluation of Changes in Some Physico-Chemical Properties of Bottled Water Exposed to Sunlight in Bauchi, Nigeria” by Rose E. Daffi and Fwangmun B. Wamyil

Anonymous Referee #1

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I believe that the present paper contains interesting results. Therefore, I think the manuscript could be accepted for publication after the following minor issues are addressed. Concrete comments are shown as follows. a) Abstract Line 22-24 – I would suggest to leave out the recommendation since more information is needed (especially regarding characterization of the bottles, environmental conditions such as pressure, humidity. . .). b) Introduction 1) General observation – Introduction is too long with irrelevant information in this case such as line 70-72 “Some chemicals called disinfection products (DBP) get in water as a result of disinfection (chlorination) in water treatment process. They include the trihalomethanes (THMs) and haloacetic acids (HAAs) which are the main DBPs worth noting (WHO, 2017).” 2) Sentences should be shorter and

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to the point. For example: “PET can be recycled by breaking it down into its constituents and using same to make new PET materials, unfortunately large amounts of this product still find its way to landfills, open dumps and improperly disposed waste where it breaks down to micro-plastics and nano-plastics ultimately finding its way to the marine ecosystem with deleterious environmental effects (PETRA, 2015; US EPA, 1995).” 3) Remove line 35 “Bottled water is a good option compared to other beverages especially those that contain high sugar content.” 4) What is the relevance of this paragraph on the topic: “The biological characteristics of water includes presence of pathogenic organisms-viruses, protozoa, helminths, bacteria which can cause illnesses such as typhoid, diarrhoea, tape worms, round worms. The presence of *Escherichia coli* (*E. coli*), *Enterobacter cloacae*, *Citrobacter freundii*, common in stool and sputum of warm-blooded animals including human proves the contamination of water by stool (Salvato et al., 2004; SON, 2007; Weiner and Matthews, 2003; WHO, 2017). Some of the organism however can grow in water distribution systems, reproduce as a result of warm temperatures and be inhaled as aerosols (amoebae *Naegleria fowleri* and *Acanthamoeba* spp.) (WHO, 2017). The target for most regulations is to ensure that no pathogenic organism is present in water (FDA, 2016; WHO, 2017).” 5) In the introduction it is mentioned: “Over the course of the year temperatures can rise to as high as 40oC around March-April in the study area. The study was carried out between December, 2019 to January, 2020 when average maximum temperature was 31oC. (World Weather Online, 2020)”

However in the 2.2 paragraph it is mentioned: “December 2019 (Ambient: Max temp = 31oC, Avg. temp = 16oC and Min Temp = 16oC) and January 2020 (Ambient: Max temp = 31oC, Avg. temp = 24oC and Min temp = 14oC) (World Weather Online, 2020) using a destructive sampling technique.” Could you explain the difference in average temperatures? Was the temperature continuously monitored during 28 days? How could you explain these data being representative for temperatures of 40C while having experiments done during average of 16 and 24C? c) Results and discussion 6) Different bottles either control samples or samples exposed to sunlight are showing changes to

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pH, antimony, BPA and nitrate concentrations. However the explanation and link is missing to why is there a different decrease in for example pH. What is the structure of the bottles itself and what is the water matrix. What is effecting one sample to have pH decrease of 3.6 % while other 20%.

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