Journal Name:	**British Journal of Applied Science & Technology**
Manuscript Number:	**2014_BJAST_13003**
Title of the Manuscript:	**Development of a chewing bench for testing dental materials: first stage**
Type of the Article	**Original Research Article**

Compulsory REVISION comments	Original comments of the reviewer	Reply by the author(s)	Changes done on page number and line number
1	More detailed description of the movements of each cycle and how far would it be from the clinical situation.	The authors believe that these information were mentioned in page 9 line 193 : "The proposed chewing bench has three degrees of freedom, it cannot thus accurately reproduce the complete kinematics of the human mandible compared to the hexapod design", and since this aspect is still being developed, the authors restrained from adding more details.	
2	Velocity of each cycle simulating the speed of mastication and number of cycles needed to simulate a certain period of clinical service.	20,000 cycles are estimated to correspond to one month of clinical service.	
3	How will the "shock absorbing" effect of the periodontal ligament be simulated?	At this stage; the "shock absorbing" effect of the periodontal ligament will not be simulated in the current device.(no rubber sockets as those present in the Zurich wear simulator)	
4	The role of the mentioned silicone on the simulation of the food bolus in terms of abrasive potential. Can slurries with different compositions and foodstuffs be employed as it is usually mentioned in the literature?	Different slurries with different compositions and foodstuffs could be used interchangeably with silicone, to test the different textures and consistencies of food material	The phrase "Different slurries with different compositions and foodstuffs could be used interchangeably with silicone, to test the different textures and consistencies of food material " was added at Page 9 line 179
5	Chewing forces varying from 20 to 120 N are reported in the literature (Ruben et al., 2003, ref 21). A maximum force of 500N is mentioned in the manuscript but what is the minimum load that can be applied?	The minimum load that can be applied is in the range 50 N according to the motors used in the simulator, some words were added to clarify the phrase.	The words "situated at the level of the first molar." Were added to page 7 line 158
6	Clearance of the medium used for the simulation of the food bolus after each mastication cycle.	The mastication bench is equipped with a pump at its funnel shaped base to collect the medium used during the chewing cycle as mentioned at page 9 line 203	

Minor REVISION comments			
1	Although the text is well written, it deserves further review. A few problems in the use of English are observed.	The vocabulary and grammar were revised as suggested	"in" was changed by "of" in Page 1 line 10 The words "among species" were removed from page 2 line 45
2	Please rephrase the purpose of the study (L. 68-70). Suggestion: The aim of this study is to present a prototype which MAY be able to reproduce the oral environment…	The purpose of the study was changed as suggested	The purpose of the study was changed as suggested page 3 lines 70 "The aim of this study is to present a prototype which may be able to reproduce the oral environment"
3	Figures are not self-explanatory. Please add more detailed legends and indicate with numbers, abreviations or arrows the different components which should be highlighted in each figure.	Arrows and detailed legends were added to figure 4 page 6	Arrows and detailed legends were added to figure 4 page 6
4	L 169 "It corresponds perfectly to the chemicals in human food". This statement needs a reference.	The phrase was changed to : corresponds to the pH range present in human food.	The phrase was changed to : corresponds to the pH range present in human food. Page 8 line 170
5	Table 2 can be substituted by referring to the website.	The presentation of the material properties in Table 2 and its appearance in the paper was considered by the authors to be of importance to the reader.	
6	L. 182-184. The authors state that the device "is capable of reproducing the oral environment…". Please rephrase it as no tests were presented to validate the performance of the device.	The phrase was changed as suggested into: The device presented in this paper is capable of reproducing an artificial oral environment and testing dental materials in conditions which are very close to in vivo conditions.	The phrase was changed as suggested into "The device presented in this paper is capable of reproducing an artificial oral environment and testing dental materials in conditions which are very close to in vivo conditions" page 9 line 184
7	Please describe the "three degrees of freedom" mentioned in L. 191.	Only three motors are used in the present device to achieve three degrees of freedom on the X, Y and Z axis, six degrees of freedom can be achieved with six motors, with a more complex trajectory, which was deemed unnecessary at the present stage.	
8	L 194-196. Do you mean that temperature and pH variations would compensate limitations in the mechanical aspects of chewing simulation? Please clarify using references.	The phrase was reviewed and changed accordingly to "this choice should not in our opinion significantly change the overall results." The rest of the phrase was removed from the text ~~, since their relevance is based on the simultaneous presence of other parameters (thermal and chemical) in the oral environment.~~	The rest of the phrase was removed from the text page 9 line 198.