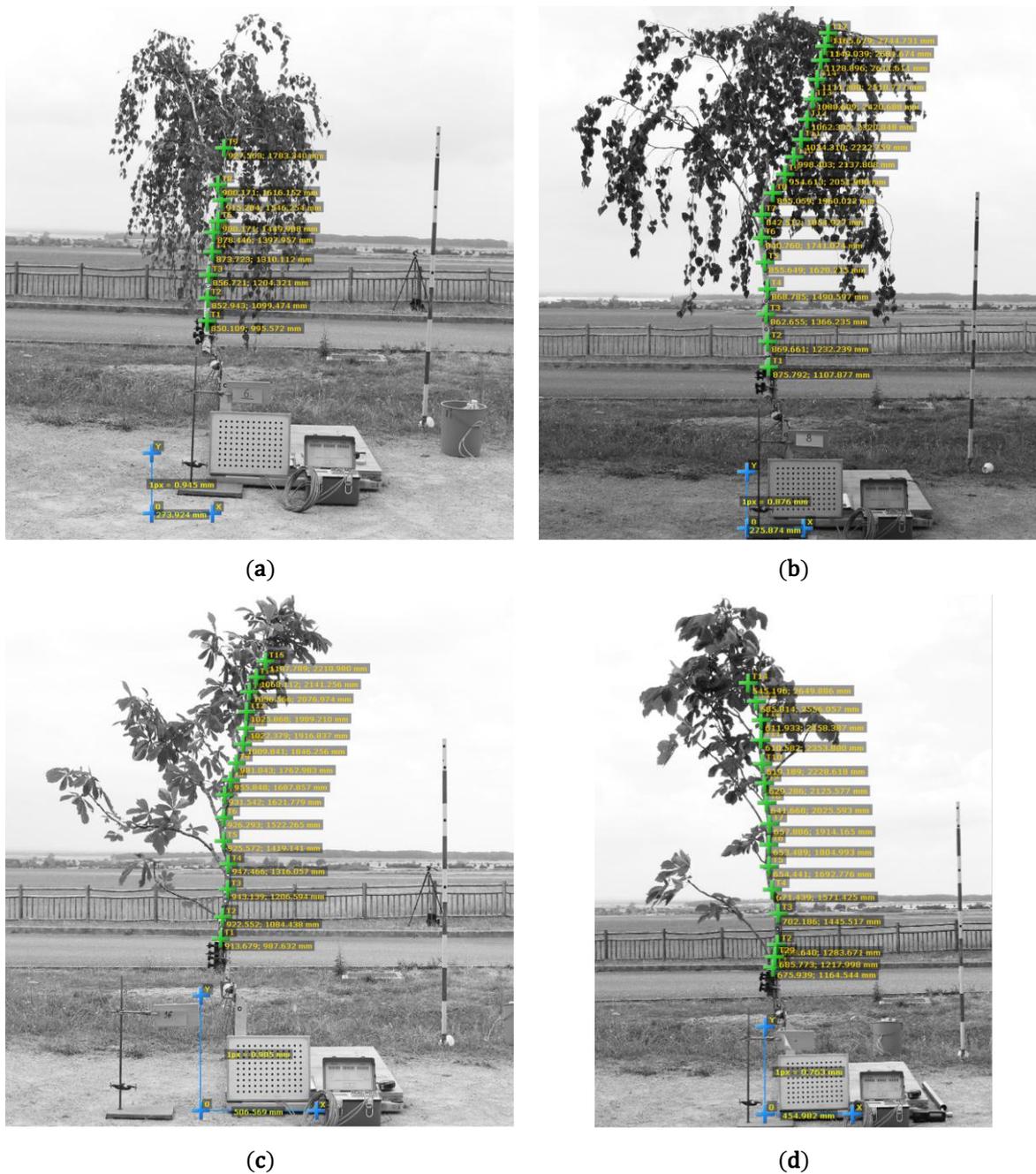
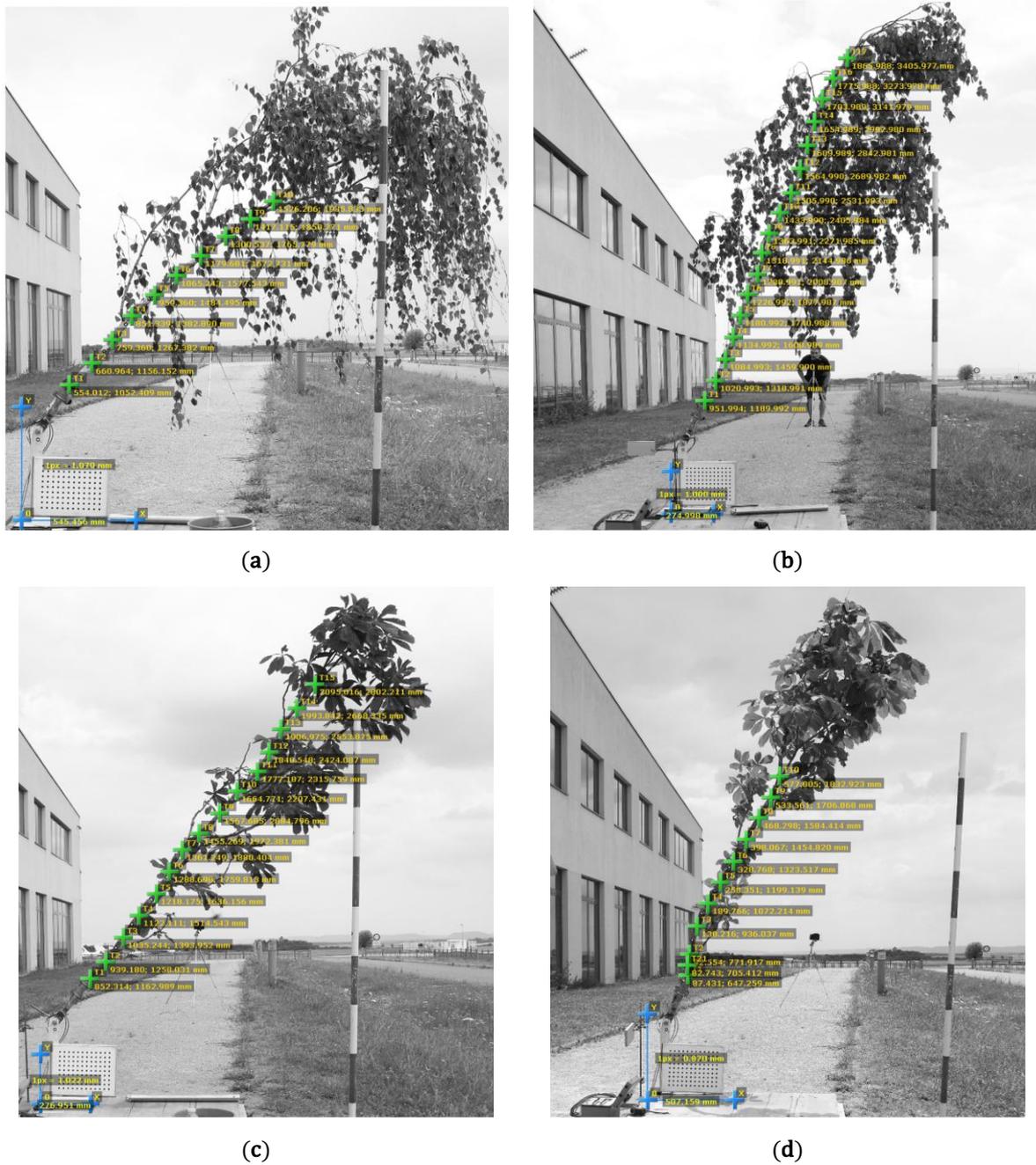


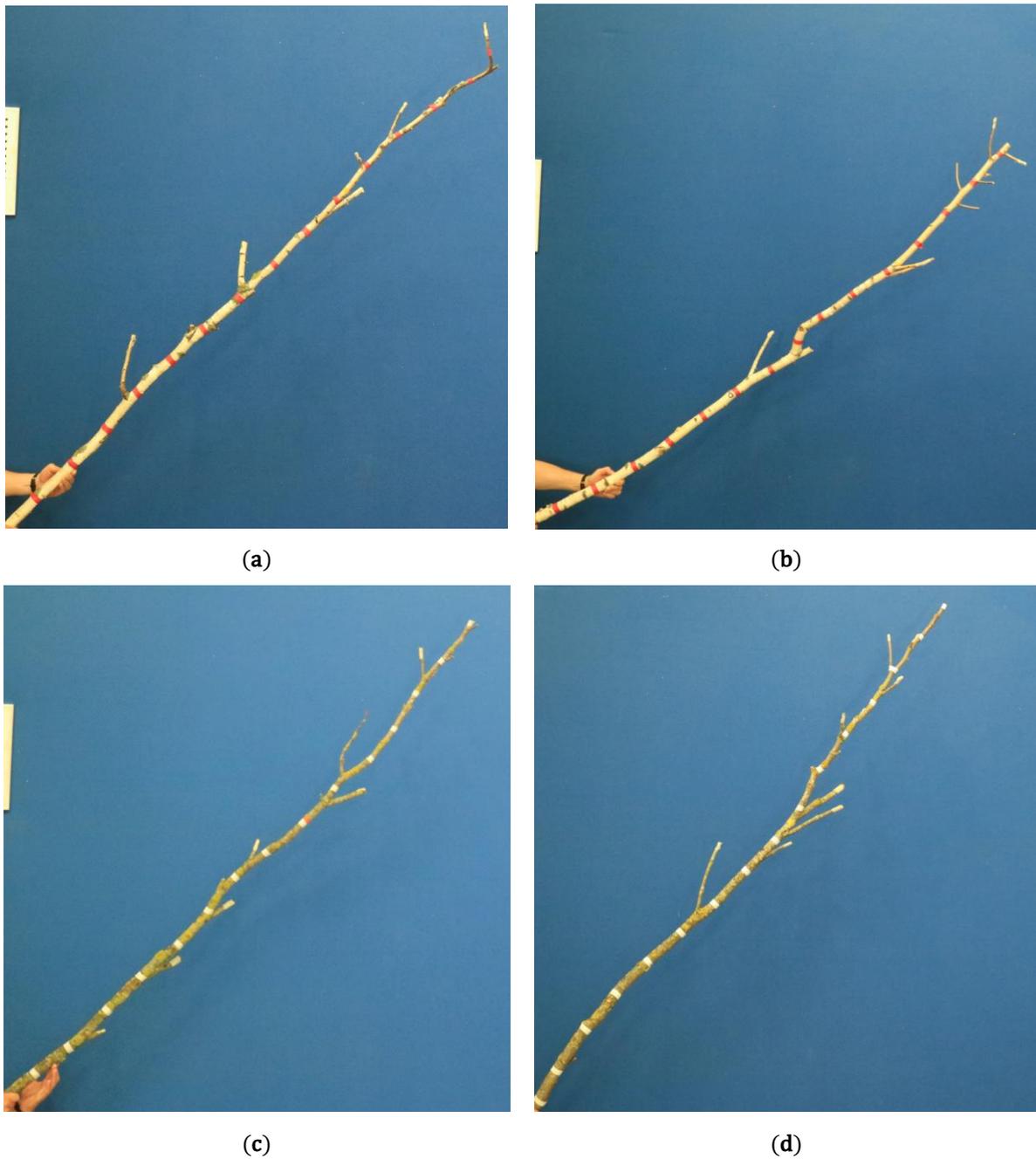
Supplementary material  
S1 Figures



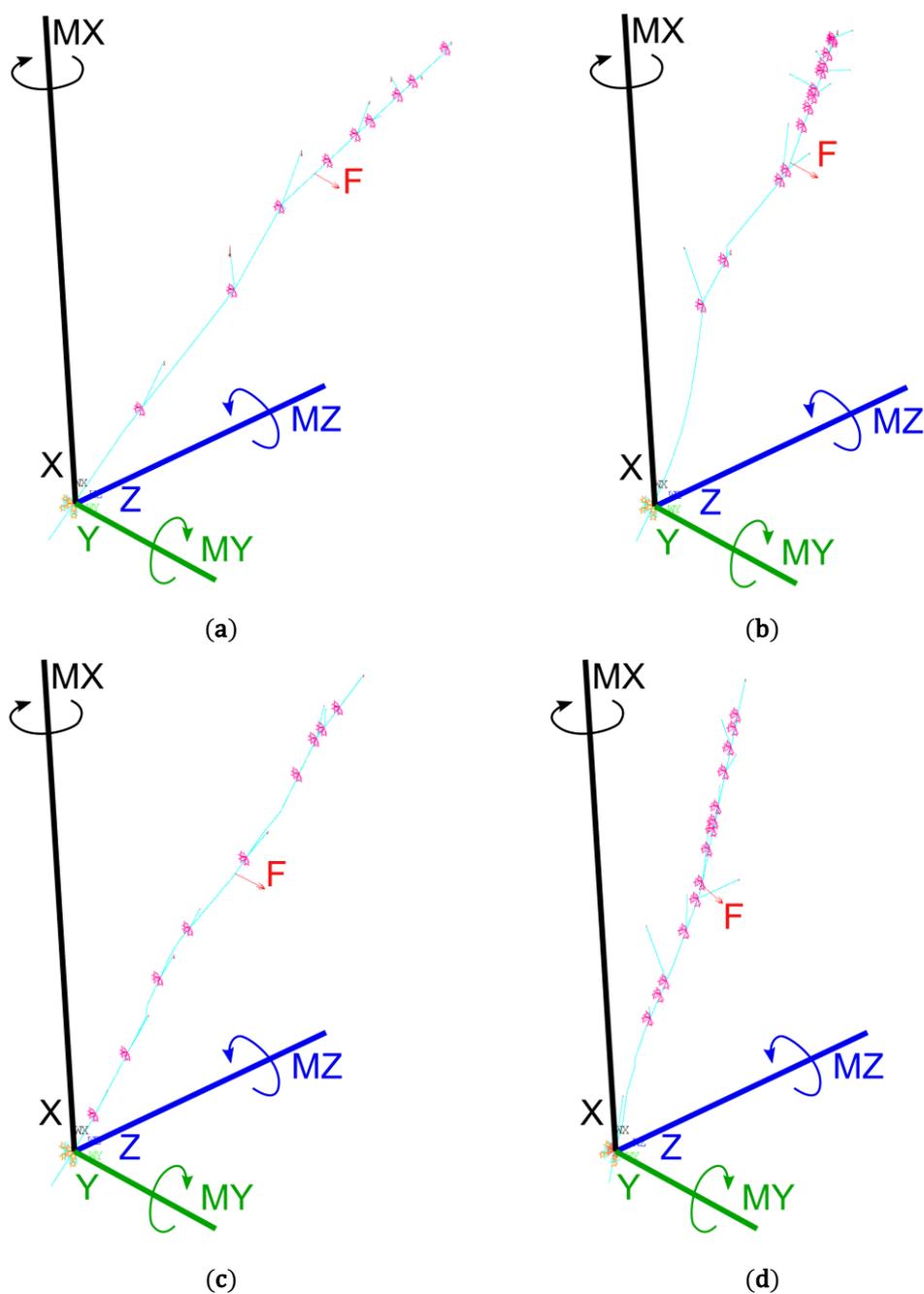
**Figure 1.** Experimental set up with observed markers along the main axis in the case of horizontal loading: (a) Branch no. 1, (b) Branch no. 2, (c) Branch no. 3, (d) Branch no. 4.



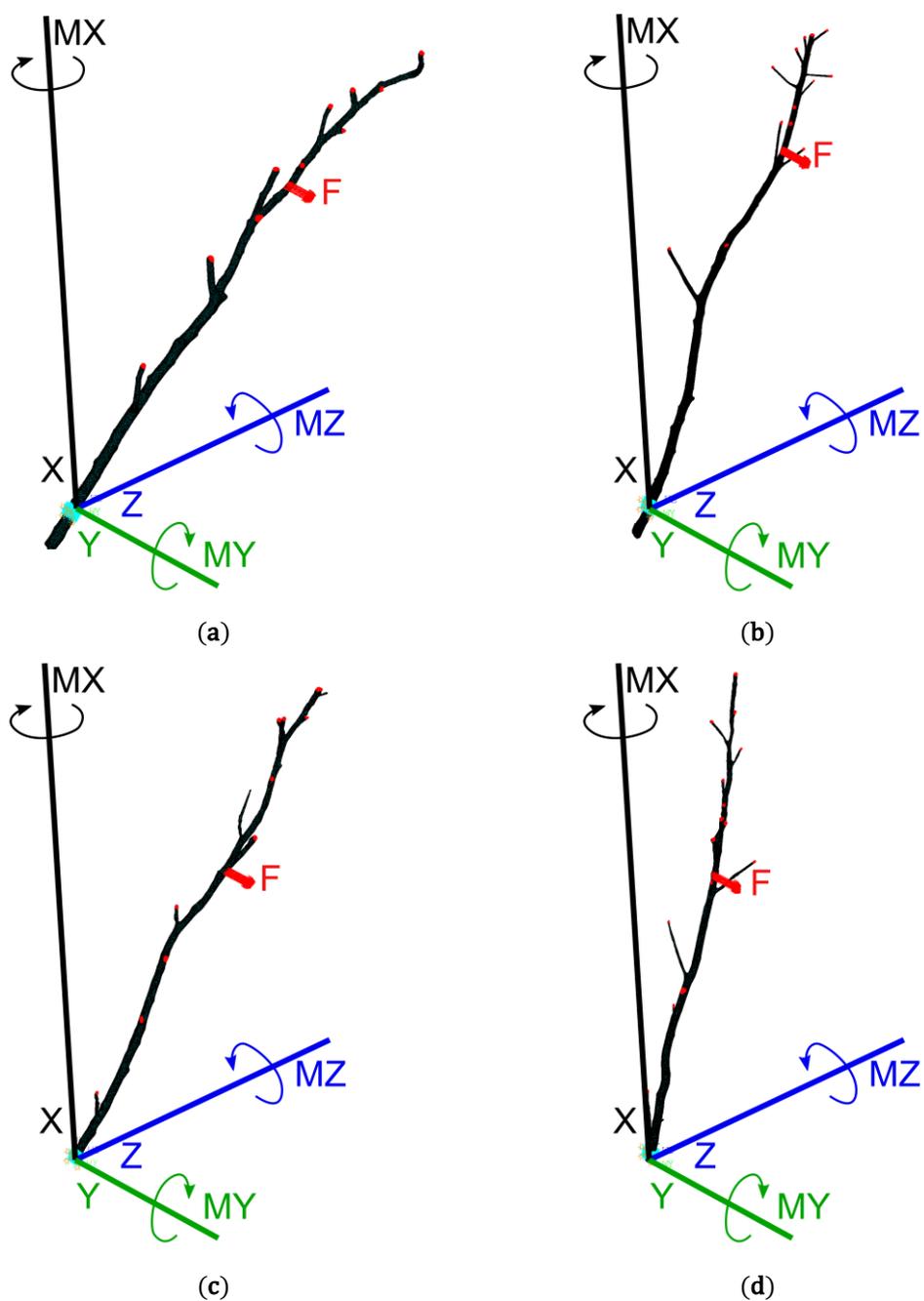
**Figure 2.** Experimental set up with observed markers along the main axis in the case of vertical loading: (a) Branch no. 1, (b) Branch no. 2, (c) Branch no. 3, (d) Branch no. 4.



**Figure 3.** Main axis with pruned side branches used as basic structure for modeling: (a) Branch no. 1, (b) Branch no. 2, (c) Branch no. 3, (d) Branch no. 4.



**Figure 4.** Finite element beam models with the schema of result coordinate system (RSYS), bending moment components and boundary conditions of horizontal loading: (a) Branch no. 1, (b) Branch no. 2, (c) Branch no. 3, (d) Branch no. 4.



**Figure 5.** Finite element scan-based solid models with the schema of result coordinate system (RSYS), bending moment components and boundary conditions of horizontal loading: (a) Branch no. 1, (b) Branch no. 2, (c) Branch no. 3, (d) Branch no. 4.