

COMUNICAÇÃO ORAL 6

Food microbiology classes during confinement: flipped classroom and dynamization of online synchronous activities

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Resumo

Introduction: Laboratory teaching of Food Microbiology (lab-MICRAL) in Pharmaceutical Sciences Master of Porto University (2h/week; 4th-year/2nd-semester) includes water/food/surfaces analysis based on microbiological criteria and standardized methodologies cultural/immunological/molecular-biology/genomic methods). COVID-19 confinements were a challenge to teacher-students empathy, students' motivation and understanding of laboratory concepts. **Objectives:** To develop pedagogical strategies applied to lab-MICRAL's during the 2021 confinement that would allow students to have: a) a solid understanding of laboratory concepts; b) involvement and motivation; c) autonomy and security in laboratory experiences during face-to-face classes occurring after confinement. **Material and Methods:** The lab-MICRAL's teaching included online (7-weeks) and face-to-face (4-weeks) classes. During confinement, students (n=36) had an autonomous weekly study (flipped-classroom) supported by recorded classes, slides, videos with experimental protocols and other documents. Online synchronous classes (2h/week; Zoom-Colibri) were used to solve doubts and apply learned concepts in case studies. Students worked in 4-5 elements random groups to promote diversity in interaction. The global discussion of each case study was done in the end of the class with everyone. During face-to-face classes, students performed and

interpreted the laboratory methodologies previous discussed in flipped and synchronous-online classes. Laboratory evaluation (4 values) was done by multiple-choice questions and cases studies resolution. Students classified the pedagogical strategies applied through an anonymous survey (via Moodle) and the Pedagogical-Surveys-of-Porto-University (IPUP). **Results:** Students actively participated in case studies during synchronous online classes. Afterwards, they easily understood the laboratory protocols during face-to-face classes. Laboratory classifications of 2020/2021 had an average of 15 values, the same of pre-pandemic years (2017/2018 and 2018/2019). In Moodle survey, 64%-n=23/36 of students said they often consulted available material before synchronous classes (96%) and rated positively (6.3 and 6.5 out of 7) the "contribution of practical exercises to knowledge sediment" and the "pedagogical strategies used in distance classes to better understand face-to-face laboratory classes". In IPUP, the dimensions of "support for autonomy", "structure" and "involvement" were similarly classified in 2017/2018, 2018/2019 and 2020/2021 (6.8-6.9/6.6-6.7/6-6.1). **Conclusions:** The proposed objectives were achieved, with maintenance of good laboratory classifications in 2021. Currently, the pedagogical strategies applied (flipped classrooms and cases studies) are being integrated into face-to-face 2021/2022 laboratory classes.

Keywords: flipped-classroom, case-studies, online-classes-dynamization, Pharmaceutical Sciences, Food Microbiology.