

## Enzymatic activity and biotypes of *Candida* fungi isolated from the surfaces of mobile phones and hands

Kordecka A.<sup>1 A-F</sup>, Krajewska-Kułak E.<sup>2 A,C,D,E,F</sup>, Łukaszuk C.<sup>2 B,C,D,E,F</sup>, Kraszyński M.<sup>3B,C</sup>, Kraszyńska B.<sup>2B,C</sup>

1. Department of Anesthesiology and Intensive Therapy, Medical University of Białystok, Poland
2. Department of Integrated Medical Care, Medical University of Białystok, Poland
3. Department of General Practice, NZOZ Siloe S.c, Białystok, Poland

---

**A**- Conception and study design; **B** - Collection of data; **C** - Data analysis; **D** - Writing the paper; **E**- Review article; **F** - Approval of the final version of the article; **G** - Other (please specify)

---

### ABSTRACT

---

**Introduction:** The secretion of hydrolytic enzymes is a factor facilitating pathogenic fungi invasion into the tissues.

**Purpose:** To assess hydrolytic activity and biotypes of *Candida* strains isolated from samples collected from the surfaces of mobile phones and the hands of their owners.

**Materials and methods:** The study included 175 mobile telephones and hands. The API ZYM test was used to assess enzymatic activity; biotyping was performed according to Williamson's classification.

**Results:** Among the strains isolated from hand surfaces, the highest activity was shown for *C. albicans* (acid phosphatase, esterase), *C. glabrata* (leucine arylamidase, acid phosphatase, esterase),

and *C. krusei* (acid phosphatase). Of the strains isolated from phone surfaces, the highest activity was shown for *C. albicans* (leucine arylamidase, acid phosphatase), *C. glabrata* (esterase, leucine arylamidase, esterase lipase), and *C. krusei* (acid phosphatase). Biotypes G, B and F were dominant for all types of fungi, both for strains isolated from phones and hand surfaces. Additionally, biotype A was dominant for *C. krusei*.

**Conclusions:** *C. albicans*, *C. glabrata*, and *C. krusei* showed activity for all hydrolytic enzymes. The strongest correlation between the hydrolytic activity of fungi isolated from hand and phone surfaces was shown for *C. albicans*.

**Keywords:** *Candida*, hands, telephone, API Zym

---

DOI: 10.5604/01.3001.0010.1746