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Advancing Industrial Chemistry: Exploring the Bioassay and Efficacy of Micronized Fluconazole against *Candida albicans* and *Aspergillus niger*

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Abstract

Aspergillus fumigatus and Candida albicans to examine the biological e ects of þuconazole in both its natural form

feasible particle size. The antifungal e ectiveness of the product was contrasted between the plain material (heavy

when the particles are the tiniest. The properties and particle size of the micronized material (extremely ýne powder) are studied by SEM, Fourier transform infrared spectroscopy (FT-IR), and laser di raction. The antifungal activity of micronized þuconazole is more e ective than that of þuconazole plain material (coarser type particles).

I d c

Numerous industries, including the chemical industry, face substantial issues as a result of fungus contamination. In this industry, fungal proliferation can result in product degradation, lower productivity, and serious health risks. In the context of the chemical industry, this study sought to examine the bioassay and e cacy of micronized uconazole, a commonly used antifungal drug, against two well-known fungal strains, Candida albicans and Aspergillus niger. In order to assess the inhibitory potential of micronized uconazole against both Candida albicans and Aspergillus niger, the study used in vitro experiments and microbiological methods [1]. e fungus were at , rst isolated and identi, ed from tainted samples in the chemical sector. Following the establishment of fungal cultures using standardized procedures, the minimum inhibitory concentration (MIC) method was employed to determine the sensitivity of the cultures to micronized uconazole.

Fluconazole (C13H12F2N6O)(FNE), a triazole antifungal, is highly bioavailable as determined by micronization, electron microscopy, and bioassay. FNE has a low toxicity and is e ective against many pathogenic Candida species. the chemical 1,3-bis(1H-1,2,4-triazol-1-yl) 2-(2, 4-Di uorophenyl) Propan-2-ol is the IUPAC name for this substance. FNE can be used on the mouth, vagina, throat, and esophagus—the tube connecting the mouth to the stomach—to treat fungal and yeast infections [2]. It can also be utilized to treat organs