

Chapter 5

Insights on Prospects of Natural Products in the Management of Autism

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ABSTRACT

Autism spectrum disorder (ASD) is a multifaceted neurological condition that impedes an individual's capacity for communication and socialization for the rest of life. Recurrent, capped behaviours which compromise cognitive function are indeed its hallmark. To treat behavioural issues linked to autism, speech therapy, occupational therapy, and special education programs have all been employed. The researchers also looked at using herbal remedies to treat autistic people because of the negative effects of ASD medications. Natural products have proven to be a viable treatment for a number of illnesses, including autism and other neurological problems. These naturally existing chemicals that are known to be likely candidates for psychotherapy may be employed as chemical models or templates for building novel materials that could be a remedy for autism. In this study, we discuss the physiological and epidemiological features of autism and the role of natural products in the treatment

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of autism.

1. INTRODUCTION

Autism spectrum disorder (ASD) is a multifaceted group of lifelong cognitive growth conditions affecting a person's capacity to interact with and communicate with others. ASD is a sturdily heritable condition that often manifests in the early years and runs a continuous course with no diminution (Elsabbagh et al., 2012; Zeidan et al., 2022). There have been findings over the last ten years suggesting that childhood community rates of ASDs are higher than previously believed. The Global Burden of Disease (GBD) program has expanded its definition of the mental disorder burden to include childhood-onset mental disorders such as attention-deficit/hyperactivity disorder (ADHD), conduct disorder (CD), and autism spectrum disorders (ASDs) for the first time (Baxter et al., 2015).

Even though the underlying basis of ASD is undefined the array of manifestations these individuals offer suggests that environmental as well as inherited variables may play an integral part in the disorder's development. Moreover, gene-environment interaction can result in changes in the brain's structure and connections that are indicative of ASD as well as epigenetic abnormalities. In addition, children diagnosed with ASD frequently exhibit co-occurring psychiatric and physical diseases such as depression, anxiety disorders, attention deficit hyperactivity disorder (ADHD), sleep abnormalities, and digestive issues (Wiśniowiecka-Kowalik & Nowakowska, 2019).

1.1 Epidemiology

The preceding few decades or more have marked an ongoing rise in the overall incidence of ASD; in 2000, the Autism and Developmental Disabilities Monitoring Network and the Centers for Disease Control foretold nearly 1 in 150 children were having ASD. The suggested incidence ascended to one in 110 children in 2006, and in less than two years it rose further to 1 in 88 children. In 2012, the ASD estimates sank to 1 in 68 children (D. L. Christensen, 2016; Maenner et al., 2023). As of early, 2016, the National Health Center for Health Statistics revealed the statistical data, asserting that up to 1 in 36 children could be suffering from ASD (Zablotsky et al., 2017). Indeed, a considerably greater surge in prevalence has been observed in subsequent studies. For instance, according to the Centers for Disease Control, autism hits 1 in every 36 children. Nevertheless, only 2.2% of adults are appropriately identified as autistic (Maenner et al., 2023). Notably, ASD has been forecast to occur anywhere between 0.02-3.66 percent of the entire globe. It hits almost as high at 3.13% of Europe, 1.53% of the Middle East, 2.21% of North America, 9.3%

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