

REVIEW ARTICLE

The Contribution of Dr. Yellapragada Subbarao to the Field of Pediatrics

Kasumbiwal Ajay H.¹, Lakhe Siddheshwar A.²,
Mundhe Sudarshan R.³, Rathod Avinash Namdev⁴

How to cite this article:

Kasumbiwal Ajay H., Lakhe Siddheshwar A., Mundhe Sudarshan R. et al. The Contribution of Dr. Yellapragada Subbarao to the Field of Pediatrics. *Pediatr. Edu. Res.* 2025; 13(2): 515-517.

ABSTRACT

Yellapragada Subbarao, a pioneering Indian biochemist whose work changed the course of modern medicine. Despite battling poverty, prejudice, and anonymity, Subbarao made ground breaking discoveries in nutrition, antibiotics, and cancer treatment. He was chosen for this paper not only because of his scientific legacy but also due to there silience and humility that defined his life qualities that are deeply inspirational, especially to students and aspiring professionals in health care and science. Dr. Yellapragada Subbarao may not be a household name, but his discoveries continue to save lives every day especially those of children. From nutrition to antibiotics, his work has shaped modern medicine in profound ways. More importantly, his life teaches us that greatness often lies in perseverance, humility, and a deep commitment to human well-being. For students and young scientists, Subbarao's journey serves as both a become and a challenge: to strive not for fame, But for meaningful impact.

KEYWORDS

- Folic acid vitamin D • Dr. Yellapragada Subbarao • ATP and energy
- Development of antibiotic methotrexate

INTRODUCTION

Science is often defined by big names like Einstein, Curie, Pasteur etc. yet history is filled with lesser-known scientists whose

contributions have shaped the world in immeasurable ways. One such figure is Dr. Yellapragada Subbarao, a pioneering Indian biochemist whose work changed the course

AUTHOR'S AFFILIATION:

¹ Professor & HOD, Department of Pediatrics, VDGM, Latur, Maharashtra, India.

² Assistant Professor, Department of Pediatrics, VDGM, Latur, Maharashtra, India.

³ Senior Resident, Department of Pediatrics, VDGM, Latur, Maharashtra, India.

⁴ Student, Department of Pediatrics, VDGM, Latur, Maharashtra, India.

CORRESPONDING AUTHOR:

Rathod Avinash Namdev, Student, Department of Pediatrics, VDGM, Latur, Maharashtra, India.

E-mail: rathodavi2163@gmail.com

➤ Received: 12-12-2025 ➤ Accepted: 28-12-2025



Creative Commons Attribution-NonCommercial 4.0 International License (<http://www.creativecommons.org/licenses/by-nc/4.0/>) which permits non-Commercial use, reproduction and distribution of the work without further permission provided the original work is attributed as specified on the Red Flower Publication and Open Access pages (<https://www.rfpl.co.in>)

of modern medicine. Despite battling poverty, prejudice, and anonymity, Subbarao made ground breaking discoveries in nutrition, antibiotics, and cancer treatment. He was chosen for this paper not only because of his scientific legacy but also due to their salience and humility that defined his life qualities that are deeply inspirational, especially to students and aspiring professionals in health care and science.

Background: Early Life, Education, and Personal Experiences Dr. Yellapragada Subbarao was born on January 12, 1895, in Bhimavaram, a small town in what is now Andhra Pradesh, India. He grew up in a modest Brahmin family that faced significant financial hardship after the early death of his father. His mother's determination played a crucial role in ensuring he received an education, even if it meant enduring societal and economic pressures.

He initially studied at the Madras Medical College, but his refusal to wear traditional shoes (out of respect for Mahatma Gandhi's non-cooperation movement) led to conflict with British authorities, delaying his medical graduation. Eventually, he moved to the United States in 1923 to study at Harvard University, where he earned a diploma in tropical medicine.

Subbarao's early life was marked by poverty, cultural discrimination, and social isolation, especially during his time in America. Yet, these hardships only deepened his resolve to pursue scientific excellence.

Scientific Contributions: Work Related to Child Development and Pediatric Care while Dr. Subbarao's contributions span multiple fields, several have had direct or indirect impact on child development and pediatric care.

1. **Folic Acid and Vitamins:** One of Subbarao's key contributions was in the discovery and synthesis of folic acid, a B-vitamin crucial for fetal development, red blood cell formation, and the prevention of birth defects. Today, folic acid supplements are routinely recommended for pregnant women worldwide, underscoring his lasting influence on maternal and child health.
2. **ATP and Energy Metabolism:** Subbarao was the first to discover the role of

adenosine triphosphate (ATP) as an energy carrier in cells, a finding fundamental to understanding growth and metabolism. For children, whose cells divide rapidly during growth, ATP is central to their development. His discovery laid the groundwork for future studies in pediatric nutrition and metabolic diseases.

3. **Antibiotics and Disease Treatment:** At Lederle Laboratories, Subbarao played a critical role in the development of several antibiotics such as Aureomycin (chlortetracycline). While not developed specifically for children, antibiotics revolutionized the treatment of pediatric infections, saving countless young lives.

His work has had a ripple effect across medicine, from reducing infant mortality rates to improving long-term developmental outcomes through better nutrition and infection control.

Challenges and Breakthroughs: Subbarao's journey was anything but smooth. As an Indian immigrant in early 20th-century America, he faced systemic racism and exclusion from academic prestige. Though he worked at Harvard and later became the Director of Research at Lederle Laboratories, many of his achievements were either uncredited or underreported. Despite these injustices, Subbarao remained focused. One of his major breakthroughs came with the isolation of pantothenic acid, another vital nutrient, and later, with his leadership in antibiotic research at Lederle. Though he never received a Nobel Prize despite multiple nominations and significant contributions he is regarded by those in the know as one of the great unsung heroes of 20th-century Medicine. Subbarao never sought fame. His motivation was to serve humanity, and that quiet humility is perhaps his most enduring legacy.

Reflection: Lessons Students Can Draw for Their Own Journey Dr. Yellapragada Subbarao's life offers powerful lessons for students today:

Resilience in Adversity: He proved that determination can overcome poverty, discrimination, and lack of recognition. Even when marginalized, he pushed forward for himself. **Lifelong Learning:** Despite his achievements, he continued to push the

boundaries of knowledge, showing that true scientists remain curious and humble.

Service Over Fame: In an age where success is often measured by visibility, Subbarao's life reminds us that the deepest impact often comes from quiet, consistent work done in service to others. Global Citizenship: Though he was Indian by birth, Subbarao's work benefited all of humanity. His life embodies the idea that science knows no borders.

CONCLUSION

Dr. Yellapragada Subbarao may not be a household name, but his discoveries continue to save lives every day especially those of children. From nutrition to antibiotics, his work has shaped modern medicine in profound ways. More importantly, his life teaches us that greatness often lies in perseverance, humility, and a deep commitment to human well-being. For students and young scientists, Subbarao's journey serves as both a become and a challenge: to strive not for fame, but for meaningful impact.

Acknowledgement: None

Conflict of Interest: None

REFERENCES

1. Datta N. Yellapragada Subba Rao: the unsung hero of science. *Indian Journal of History of Science*. 2024 Jun; 59(2): 216-22.
2. Harshini P., Matety A.R. Dr. Yellapragada Subbarao: A Force to be Reckoned. *Indian Dermatology Online Journal*. 2025 Mar 1; 16(2): 363-5.
3. Pragya V., Ramaswamy S., B.N. S.P., Mamadapur M. The Life and Discoveries of Yellapragada Subbarow. *Digital Journal of Clinical Medicine*. 2024; 7(1): 10.
4. Sharma M., Choudhari S.G., Ingole A. Yellapragada Subbarow: A Pioneer in Biomedical Research and the Unsung Hero of Modern Medicine. *Cureus*. 2024 Aug 21; 16(8).
5. Kamath P., Shenoy K.A. Yellapragada Subbarow: The Unsung Hero. *Muller Journal of Medical Sciences and Research*. 2013 Jul 1; 4(2): 130-2.
6. Malla S. Dr. Yellapragada Subba Rao: an Indo-American trailblazer in the field of medicine. *International Journal of Research in Medical Sciences*. 2025 Feb; 13(2): 927-33.
7. Dixit V.S., AVSM V. Unknown facets of "Not so well-known scientist" Dr. Y. Subbarow: a great scientist, who did not receive the Nobel Prize. *Journal of Marine Medical Society*. 2018 Jul 1; 20(2): 141-4.
8. Saraiya U.B., Shah N. Folic Acid Therapy Completes 9 Decades—Originated in India. *J Indian Med Assoc*. 2021; 119(2): 33-5.
9. Dornala S.N., Dornala S.S. Bhashagratna achanta lakshmi pathi: pioneer of ayurveda in public health. *Journal of Ayurveda and Integrative Medicine*. 2012 Jul; 3(3): 158.
10. Dubey V.K. First person—Vinay Kumar Dubey. *Journal of Cell Science*. 2022 Oct 1; 135(20).