

ON CERTAIN PRODUCT FORMULAS OF BASIC  
HYPERGEOMETRIC SERIES

S.N. Singh, Satya Prakash Singh and Vijay Yadav\*

Department of Mathematics,  
TDPG College, Jaunpur-222002 (UP) INDIA  
E-mail: snsp39@gmail.com, snsp39@yahoo.com

\*Department of Mathematics,  
SPDT College, Andheri (E), Mumbai-400059, INDIA  
E-mail: vijaychottu@yahoo.com

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**Abstract:** In this paper, proofs of certain product formulas of basic hypergeometric series deduced from the identities due to Srivastava and Jain [2] have been given.

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**1. Introduction, Notations and Definitions**

For real or complex  $q$ ,  $|q| < 1$ , let

$$(\lambda; q)_\mu = \prod_{r=0}^{\infty} \frac{(1 - \lambda q^r)}{(1 - \lambda q^{\mu+r})} \text{ for arbitrary } \lambda \text{ and } \mu, \quad (1.1)$$

so that

$$(\lambda; q)_n = \begin{cases} 1, & n = 0 \\ (1 - \lambda)(1 - \lambda q) \dots (1 - \lambda q^{n-1}), & \forall n \in \{1, 2, 3, \dots\} \end{cases} \quad (1.2)$$

and

$$(\lambda; q)_\infty = \prod_{r=0}^{\infty} (1 - \lambda q^r). \quad (1.3)$$