

(12) PATENT APPLICATION PUBLICATION

(21) Application No.202541020566 A

(19) INDIA

(22) Date of filing of Application :06/03/2025

(43) Publication Date : 28/03/2025

(54) Title of the invention : A PHOTOCATALYTIC APPARATUS FOR CARBON DIOXIDE PHOTOREDUCTION AND A METHOD OF REDUCING CARBON DIOXIDE INTO HYDROCARBONS

(51) International classification :B01J0019120000, B01J0035390000, B01J0019000000, C02F0001720000, C02F0001320000

(86) International Application No :NA

Filing Date :NA

(87) International Publication No : NA

(61) Patent of Addition to Application Number :NA

Filing Date :NA

(62) Divisional to Application Number :NA

Filing Date :NA

(71)Name of Applicant :

**1)Department of Environmental Sciences, JSS Academy of Higher Education & Research (Deemed to be university)**

Address of Applicant :Sri Shivarathreeshwara Nagara, Mysuru, Karnataka, India-570015 Mysore -----

**Name of Applicant : NA**

**Address of Applicant : NA**

(72)Name of Inventor :

**1)Harikaranahalli Puttaiah Shivaraju**

Address of Applicant :Department of Environmental Sciences, School of Life Sciences, JSS Academy of Higher Education and Research, Mysuru – 570015, India Mysore -----

---

**2)Jijoe Samuel Prabagar**

Address of Applicant :Department of Environmental Sciences, School of Life Sciences, JSS Academy of Higher Education and Research, Mysuru – 570015, India Mysore -----

---

(57) Abstract :

A PHOTOCATALYTIC APPARATUS FOR CARBON DIOXIDE PHOTOREDUCTION AND A METHOD OF REDUCING CARBON DIOXIDE INTO HYDROCARBONS ABSTRACT  
5 A photocatalytic apparatus (100) for carbon dioxide photoreduction is provided. The apparatus (100) includes a photoreactor (102) for converting carbon dioxide into hydrocarbons. The apparatus (100) further includes a light source (110) suspended above the photoreactor (102) to activate the photocatalyst at a fixed time. The apparatus (100) 10 further includes a digital pressure gauge (104) mounted on top of the photoreactor (102) for controlling a rate of pressure inside the photoreactor (102) for sustaining the apparatus (100) integrity. The apparatus (100) further includes an inlet (106) including an airtight controlling knob (108) to control the flow of gas into the photoreactor (102). The apparatus (100) further includes a mass flow controller located at the inlet (106) 15 of the photoreactor (102). The apparatus (100) further includes an outlet (108) with an airtight controlling knob (108) associated with the photoreactor (102) to control the flow of gas out of the photoreactor (102). [Fig 1]

No. of Pages : 21 No. of Claims : 10