A study of the results obtained on the hydrogenation of C_{15} acetylene alcohol over obtained catalytic systems showed that the modification of the support by high-molecular compounds leads to an increase in the activity and selectivity of catalysts (Table 1). The rate of hydrogenation of the double bond over these systems is three to four orders of magnitude lower than the rate of reduction of the triple bond. Similar results are observed in 3,7,11-trimethyldodecyne-1-ol-3 hydrogenation over catalyst modified with PEG. The process over 1%wt. Pd/ZnO goes with the lowest activity and selectivity.

1% Pd-PVPD/ZnO performs the greatest stability with repeated use of the catalyst. The total volume of the hydrogenated over 0.05 g of this catalyst 3,7,11-trimethyldodecin-1-ol-3 is 73.08 ml, which is 62000 catalytic cycles per 1 Pd atom (turnover number - TON). Although selectivity of 1% Pd-PVPD/ZnO is lower than that of % Pd-PEG/ZnO, it is 4.5 times more active and 16 times more effective than catalyst modified by polyethylene glycol.

Table 1. **Performance of 1%wt. Pd catalysts fixed on zinc oxide in ethanol-based hydrogenation of 3,7,11-trimethyldodecyne-1-ol-3**

Catalyst	W.10^{-4}, mole/l·sec		TON	$S_{C=C}$,%
	C≡ C	C=C		
Pd/ZnO	2,71	0,25	4400	91
Pd-PEG/ZnO	6,23	0,01	3800	98
Pd-PVPD/ZnO	27,97	0,04	62000	95

According to electron microscopy data (Fig. 3), it was found that finely dispersed palladium particles with sizes of 4-8 nm, uniformly distributed on the carrier, are formed on the polymer modified zinc oxide (Fig. 3, a, b, c).

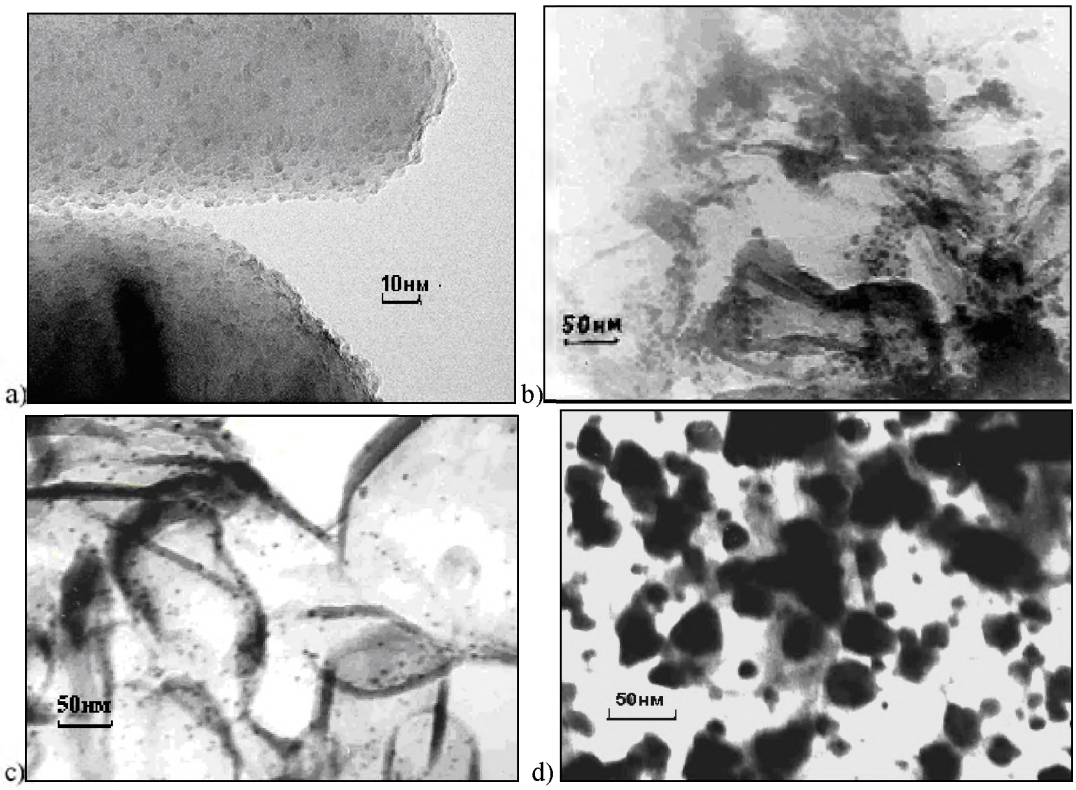

Figure 3. Micrographs of ZnO-supported 1% Pd catalysts modified by PVPD, PEG and without polymer treatment: a,b - 1%Pd-PEG/ZnO; c - 1%Pd-PVPD/ZnO; d - 1%Pd/ZnO.

Particles of metal with sizes of 30-35 nm are formed on the untreated by polymer surface of ZnO (Fig. 3, d).